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THE JOURNAL OF PHILOSOPHY
PSYCHOLOGY AND SCIENTIFIC METHODS



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THE JOURNAL OF PHILOSOPHY

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FREDERICK J. E. WOODBRIDGE

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THE JOURNAL OF PHILOSOPHY, PSYCHOLOGY AND SCIENTIFIC METHODS

THE INTERNATIONAL CONGRESS OF ARTS AND SCIENCE.

WHENEVER a new scientific journal appears, we are accustomed to take it as a sign that somewhere in the scholarly universe a new branching off has begun, a scientific specialty has undergone a new bifurcation. Interest in such a new herald is naturally confined to the few who work in the rising subspecialty. The banner, however, which this new journal is to unfold is of a very different nature. This journal does not protest against the spirit of specialization which makes our modern science and scholarship solid and strong, but it does protest against the prejudice that a detached specialization can give us the last word and can make correlations superfluous. It desires to stand for the unity of knowledge, aims to consider the fundamental conceptions which bind together all the specialistic results, seeks to enquire into the methods of science which bind together the scientific workers, and into the center of its sphere it puts philosophy. But all this seems, after all, merely a symptom of the whole spirit of our times. A reaction against the narrowness of mere fact-diggers has set in. A mere heaping up of disconnected, unshaped facts begins to disappoint the world; it is felt too vividly that a mere dictionary of phenomena, of events and laws, makes our knowledge larger but not deeper, makes our life more complex but not more valuable, makes our science more difficult but not more harmonious. Our time longs for a new synthesis, and looks toward science no longer merely with a desire for technical prescriptions and new inventions in the interest of comfort and exchange. It waits for knowledge to fulfill its higher mission, to satisfy our ideal needs for a view of the world which shall give unity to our scattered experience. The indications of this change are visible to every one who observes the gradual turning to philosophical discussions in the most different fields of scientific life. When after the first third of the nineteenth century the great philosophic movement, which found its climax in Hegelianism, came to disaster in consequence of its absurd neglect of hard solid facts, the era of natural-

ism began its triumph with contempt for all philosophy. Idealism and philosophy were stigmatized as the enemies of true science, and natural science had its great day. The rapid progress of physics and chemistry fascinated the world and produced modern technique; the sciences of life, physiology, biology, medicine, followed; and the scientific method was carried over from body to mind and gave us, at the end of the nineteenth century, modern psychology and sociology. The lifeless and the living, the physical and the mental, the individual and the social, all had been conquered by the analytic method, and the pseudo-philosophic positivism had served as a kind of substitute for a metaphysical view. But just when the climax had been reached and all had been analyzed and explained, the time was ripe for disillusion, and the lack of philosophy began to be felt with alarm in every quarter. For seventy years there had been nowhere so much philosophizing going on as suddenly sprung up among the scientists of the last decade. The physicists and the mathematicians, the chemists and the biologists, the geologists and the astronomers; and on the other side, the historians and the economists, the psychologists and the sociologists, the jurists and the theologians—all suddenly found themselves again in the midst of discussions on fundamental principles and methods, on general categories and conditions of knowledge; in short, in the midst of the despised philosophy. And with those discussions has come the demand for correlation. Everywhere have arisen leaders who have brought unconnected sciences together and emphasized the unity of large divisions. The time seems to have come again when the realistic wave is ebbing and a new idealistic tide is swelling, just as they have alternated in the civilization of three thousand years. To devote a new journal to this effort to bring together the sciences, psychology and philosophy, to emphasize the philosophic side of science and the true scientific value of philosophy, means, therefore, to understand and to appreciate the signs of a time which works toward a new synthesis of knowledge.

If this is the spirit of the new journal, I welcome the invitation to speak in the columns of its first issue on a great American undertaking of international scope, which aims at somewhat the same ideal and hopes to reenforce the synthetic spirit in a different way. The external plans of the International Congress of Arts and Science to be held in St. Louis from the nineteenth to the twenty-fifth of September, 1904, in connection with and on the invitation of the World's Fair, may be supposed to be familiar now to the scholars of the country. To all that the papers and magazines have reported concerning the general program, the selection of foreign speakers, the invitation to Europeans by the members of the Organizing

Committee, and a wide acceptance on their part, it may be added to-day that further important steps have been taken during the last few weeks. For American speakers and sectional chairmen, about 340 Americans have been selected, and invitations will soon be extended to them. All this has been done with the hearty cooperation of the great body of scientific men of this country. The president and the two vice-presidents of the congress, Professor Newcomb, Professor Small and I, had asked in November for advice from the council members of eighty societies of national scope, and from all sides authoritative suggestions were kindly furnished. In December, then, we three prepared, on the basis of this rich material, the list of invitations, and its final shape was voted by the Administrative Board with President Butler in the chair, President Harper, President Pritchett, President Jesse, Librarian of Congress Putnam, and as representative of the World's Fair, the Director of Congresses, Howard J. Rogers, being present. We gladly followed the propositions of the official representatives of the great societies; and yet we had no right to take them otherwise than as the suggestions for which alone we had asked, inasmuch as many secondary points of view—a fair distribution between different parts of the country, between different institutions, between different groups, had carefully to be considered. If the Americans accept the invitations in the next few months with the same readiness and willingness which the Europeans have shown, we can expect that the World's Fair will see in that September week a gathering of the most eminent scholars of the world and a work of incomparable value for the unity of the knowledge of our time.

Of course, no one dreams that the great synthetic apperception, for which our modern time seems ripe, will come through the delivery of 500 addresses, the discussions of 200 audiences, or the printing of papers by hundreds of authors. An ultimate unity demands the gigantic thought of a single genius, and the work of the many can after all be merely the preparation for the final work of the one. And yet history shows that the one will never come if the many have not done their share. That which is needed is to fill the sciences of our time with a growing consciousness of belonging together, with a longing for fundamental principles, with a conviction that the desire for correlation is not the fancy of dreamers, but the immediate need of the leaders in thought. What can the congress do to help in this preparatory work, and what has it done?

To begin at the beginning, the International Congress will represent the totality of sciences. We all know very well that specialistic work is best fostered if the representatives of one specialty are left alone in their meetings, and that a quiet place is the right resort

for them. Such meetings go on everywhere all the year round, and the World's Fair would be the worst background for them. But the place where the nations gather with their arts and industries is not bad headquarters when we try to bring all sciences together. And such an end can not be reached if, as in Paris, merely a long list of successive congresses is provided. One single congress, meeting at one time, could alone hold together the totality of intellectual endeavors. But above all, every striving for truth ought to find its place in the program, the applied practical sciences as well as the theoretical ones, the mental as well as the natural sciences. The special danger was that the prejudices left over from the anti-philosophical past might hinder the acknowledgment of those sciences whose material does not fall under the categories of causality. All the historical sciences and normative sciences would, in that case, be forced into the framework of biology, psychology and sociology; but also here all one-sidedness was avoided and a program worked up which prepares the way to a real philosophical unity by doing full justice to the teleological aspects of reality. We came thus to the establishment of 129 sections of similar extent.

But the synthetic purpose could not have been fulfilled if these different sections had been simply set beside each other. The related sections had to be grouped into departments. We distinguished twenty-four such departments. The related departments had to be grouped into divisions; we have seven such divisions, of which the first four, the Normative Sciences, the Historical Sciences, the Physical Sciences, the Psychical Sciences, form the first chief part—Theoretical Knowledge; while the last three divisions, the Utilitarian Sciences, the Regulative Sciences, and the Cultural Sciences, form the second chief part—Applied Knowledge. But this classification into divisions, departments and sections could become living only when the work itself should become in a way a dramatic realization of such a plan. Thus our first meeting will be devoted to the totality of knowledge. On the first afternoon the whole will resolve itself into the seven divisions. On the second day the seven divisions will divide into the twenty-four departments. And on the next five days the departments will branch out into the 129 sections, of which each one will take either an entire morning or an entire afternoon, thus making it possible for every one to attend the meetings of nine sections—enough to cover, probably, the whole sphere of his related interests.

More important is the choice of subjects for the leading addresses. Each department and each section will have as its chief contribution two addresses. No one of the 320 speakers invited to give the leading essays will simply follow his own specialistic interests, but will

accept or decline the invitation to deal with a definite topic which is an organic part of the whole undertaking. The speakers for each division will deal with the unity of that divisional field. Each department will devote the first address to the historical aspect of its subject, dealing with the development of the sciences of the whole department during the nineteenth century; while the second address will consider the fundamental conceptions and methods of the whole department. All the divisional and departmental speakers will be Americans; the work of the first two days will thus be the contribution of this country in welcome. On the third day, with the opening of the sections, begins the international work. Americans will be chairmen in all sections, and in nearly every section one of the two addresses will be delivered by Americans. The first sectional address will deal with the relation of that science to allied sciences; the second with the leading problems of our time. But in every section there will be, besides these two fundamental addresses, five or six shorter communications on invitation from the chairman; and while the topics of these are not prescribed, the tendency here too will be to emphasize the wider aspect. It is clear that such a system, by the topics of the addresses alone, thus forces the speakers to weave an intellectual network, making the sciences conscious of their interrelations, their fundamental problems, and their contributions to the totality of social consciousness. And all this will go on record in printed form. Twenty-four volumes, each one devoted to one department and its sections, will reenforce this powerful movement.

But the most essential condition of success is the choice of speakers and chairmen. To speak on the general aspects of a subject is in a way the easiest possible task. If a beginner tries it—and it attracts every beginner—he feels confident because he believes that his lack of mastery can be better hidden than in the discussion of special facts, where ignorance at once becomes evident. But every one knows also how utterly useless the undertaking in such a case must be. To approach the general problem in a helpful, original spirit is, on the other hand, a most difficult task, for which only those are prepared who have devoted a life of faithful service to the most various specialized subjects. The selection of scholars, in whose judgment on general problems the specialistic authorities confide, has thus been the very first condition of the plan. Only those men ought to be in question who have reached, by hard climbing alone, a height from which it is possible to take a bird's-eye view. This country does not lack such leaders, and the American instinct for organization and correlation and cooperation has always been favorable to the development of wide interests. The galaxy of American

speakers and chairmen will give an impressive idea of the breadth and strength and unity of the New World's thought. All indications justify the hope that the list of those who will take part will not be less imposing than the list of those who will receive invitations. But inasmuch as most of the calls are not yet out, it would be unbecoming to mention any names at this hour. It is not the same, however, with the Europeans to whom the invitations were personally conveyed last fall, by the organizing committee, and with whom the negotiations are, for the most part, closed.

For the 129 sections, 122 foreigners, about two thirds of those who have been approached officially, have definitively accepted the invitation. With a few others negotiations are pending. There are a few sections, like American History and others, for which we did not seek foreign speakers, and a number of other sections for which we gave both sectional addresses to Europeans, inasmuch as Americans had an exclusive right to the divisional and departmental speeches. It would lead too far to analyze the whole foreign list, but it may be in order to point here at least to those sections which fall most directly into the narrower circle of this journal. The department of philosophy has been divided into the following sections: metaphysics, philosophy of religion, logic, methodology of science, ethics, philosophy of law, esthetics. The department of psychology has been divided into the four sections: general psychology, experimental psychology, comparative psychology and abnormal psychology. The following Europeans will give leading addresses in these eleven sections: in metaphysics, Bergson, from Paris; in philosophy of religion, Pfeiderer, from Berlin, and Troeltsch, from Heidelberg; in logic, Riehl from Halle, and Windelband from Heidelberg; in methodology of science, Ostwald from Leipzig, and Erdmann from Bonn; in ethics, Sorley from Cambridge; in philosophy of law, Binding from Leipzig; in esthetics, Lipps from Munich, and Dessoir from Berlin; in general psychology, Hoeffding from Copenhagen; in experimental psychology, Ebbinghaus from Breslau; in comparative psychology, Lloyd Morgan from Bristol; in abnormal psychology, Pierre Janet from Paris. Now add to this list of European philosophers and psychologists who make leading addresses the names of Americans such as Baldwin, Bowne, Cattell, Dewey, Duncan, Hall, Howison, James, Ladd, Ormond, Pace, Palmer, Royce, Sanford, Shurmann, Thilly, Titchener, Tufts, Woodbridge and about ten more, all of whom will receive invitations, and the weight of this international combination must be strongly felt by every one who has the slightest knowledge of philosophical and psychological literature. And yet it is clear that the circle of those foreigners, for instance, whose presence and whose work would in-

terest the philosophers and psychologists is not at all confined to those who are booked officially for these sections only, but includes many brilliant men who will speak in related sections, but who probably will add shorter communications also in those sections mentioned. The psychologists, for instance, will feel no less interest in men like Lombroso from Turin, who comes for criminology; or Simmel of Berlin, and Toennies from Kiel, both of whom come for social psychology in the department of sociology; or Ziehen from Halle, who comes for psychiatry; or Erb from Heidelberg, in the section of neurology; or Waldeyer from Berlin in anatomy; or Engelmann from Berlin in physiology; or Manouvrier from Paris in somatology; or Ziegler from Strassburg, or Sadler from Manchester, or Rein from Jena, all of whom come for education. On the other hand, those interested in logic and methodology of science will greet with enthusiasm the great mathematicians, Picard and Darboux and Poincaré, all three from Paris, together with Boltzmann from Vienna; or naturalists of such philosophic temper as Mendeleef of St. Petersburg, or Dewar of London, Thompson of Cambridge, Van't Hoff of Berlin, Becquerel of Paris, Hertwig of Berlin, Giard of Paris, and many others. The philosopher interested in esthetics will welcome in the department of literature and art men like Furtwaengler of Munich, Muther of Breslau, Minor of Vienna, Enlart, Michel, Brunetière, all three of Paris. Those interested in philosophy of religion will hear men like Harnack of Berlin, Oldenberg of Kiel, Budde of Marburg, and many others. In short, wherever the center of individual interests may lie, every one will find that in his own circle the most brilliant names can be found. It is perhaps not too much to say that there will cross the ocean the leading economists and historians, the foremost philologists and naturalists, the greatest jurists and physicians, engineers and theologians; and everywhere the noblest American energies will assist them.

But the associations which cling to these famous names suggest exactly the type of thought to which the whole undertaking is devoted. Almost every one of these European scholars has in his own field brought about a certain synthesis of widely separated elements of thought, and has devoted not the smallest part of his work to the fundamental conceptions and methods of his science. The addresses which they will deliver thus lie essentially in the line of their own best thought, and yet it is most probable that the greater part of these addresses would never have been written had not the outer occasion of our invitation stimulated them to undertake the task. Such work is too easily postponed. And thus the congress may hope to create in these hundreds of addresses a connected and

consistent work which no chance group of individuals would have produced, which demanded a unified program and the enthusiasm of the leading thinkers of the world. But we hope that still more important than the set addresses will be the living influence of this gathering, in which the four or five hundred invited official speakers and chairmen, together with the thousand who may make shorter communications, will form merely the nucleus of the international meeting. That such a unique fusion of scholarship will be productive in itself no one can doubt; but that these scholars are brought together and are doing their work under the control of the demand for unity in knowledge, for interrelation and synthesis:—this thought will be the living force, the most powerful factor of the Congress, and a tremendous influence in overcoming the pedantic and unphilosophic narrowness of specialists in every corner of the realm of science.

HUGO MÜNSTERBERG.

HARVARD UNIVERSITY.

THE RELIGIOUS CONSCIOUSNESS AS ONTOLOGICAL.¹

THE study of religion as a historical development has for its principal problem to trace the rise and evolution of the conception of Divine Being, and of the relations which this Being sustains to nature and to the human race. The lowest stage of religious belief seems to be a kind of naïve, vague and unreflective spiritism. This belief attaches itself to a motley group of invisible spiritual powers, some of which are ill-disposed, and some more kindly, toward man; but all of which are mysterious in nature and more or less capricious in conduct. But under the influence of political and social changes, and by means of the reflective thinking and insight of a few, a more definitely anthropomorphic conception of the gods, and of their relations to man, is formed; and yet later, but chiefly in dependence upon the teaching of religious thinkers, reformers or 'founders' of religion—'men of revelation'—monotheism appears. In its purest form, this highest development of the religious consciousness first took place, upon a basis common to the Semitic religions, among the Jews; but it is Christianity which preeminently stands for the conception of God as perfect Ethical Spirit, as well as the 'Ground' of the world and of human life. Considered from the empirical point of view, this process may be described as man's making of the Divine Being after the pattern of the constantly improving image of man.

The study of the same phenomena from the psychological point of view shows us how the impulsive and emotional nature of man

¹ Brief abstract of a chapter in a treatise on the philosophy of religion.

has cooperated with his intellectual curiosity to arouse and guide imagination and intellect in their efforts to construct a worthy conception of God. In a word, the psychology of religions shows us what stimuli have excited, and what activities have been employed in, the task of forming the idea of the Object of religious belief and worship. This psychological study of religion, too, has for its problem the construction, by the human mind, of a conception of the Divine Being in a form to satisfy man's eudæmonistic, intellectual, esthetical and moral needs. It shows us why, and how, man makes God in his own (man's) image.

But now, the notable thing about this mental activity, and its resulting product, is its ontological character. For religion is, as a matter of historical and psychological fact, always metaphysical. It is always a naïve or a reasoned theory of reality. It is an attempt to explain human experience by relating it to invisible existences that belong, nevertheless, to the real world. Indeed, monotheism finds in its One and Alone God the Ultimate Reality, the Being from whom all finite beings proceed, on whom they all depend, and to whom they all owe the devotion of their lives in a faithful allegiance. This, however, is ontological doctrine—somehow postulated rationally, or reasoned out, or superstitiously and vainly imagined.

The customary agnostic or sceptical attitude toward the validity of the religious consciousness as ontological is based upon two grounds. Of these the first emphasizes the large part which feeling and imagination play in the construction of the Object of religious belief; and the second points to the dependent and evolutionary character of the conception thus constructed. The conclusion is, that an idea which is so largely the result of unscientific and only half-rational impulses and *motifs*, and which is so plainly a dependent outgrowth of man's historical development, can not have ontological validity.

It is not our present purpose to establish the objective validity, by philosophical discussion, of the conception of the Divine Being, or the Object of religious belief and worship, in any one of its several forms. It is only our purpose to note some of the characteristics of this ontological aspect of the religious consciousness in general, when regarded chiefly from the psychological point of view.

And, first, the facts plainly show that there is something universal and permanent in the constitution of man which furnishes the stimuli and supplies the principles of control in this form of his creative energy. These very reactions upon his physical and social environment themselves need explanation; and the reasonable presupposition is that their complete explanation involves both man's nature and the real nature of his environment as well. This

needed explanation religion attempts to furnish by the doctrine that God, the Ground of both nature and man's life in history, is progressively making men more in His own (the divine) image.

Now we can no more reasonably, and in the name of science and philosophy, quarrel with the evolutionary method in religion than in any other of the several most important forms of the complex progress of the human race. If the religious beliefs, sentiments and cult of humanity were not subjects of development, then religion could never exist in helpful reciprocal relations with man's other developments. But the data of history confirm what a study of human nature suggests as undoubtedly true—namely, that all the various forms of race-culture are most intimately and necessarily related to the activities and products of the so-called religious culture. Industry, politics, science and philosophy, art and morals, all advance or retrograde in dependence upon one another and upon the religious progress or degradation of mankind.

The reciprocal dependence of all these reactions upon the spiritual unity of the race, and upon the particular stages of race-culture, is a general truth established by a study of man's religious history. But all this history shows that the development of religion always carries along with its changing beliefs a certain confidence in its own right to a metaphysics, or a theory of reality, which shall explain those peculiar experiences in which its essential nature, as religion, consists.

This general truth as to the procedure of the religious consciousness may, as has already been indicated, be considered to involve two equally important classes of factors. The first of these is involved in all the exercises of man's cognitive faculty, and in all the growth of knowledge. The psychological principle which is applicable in religion is therefore applicable also in science and philosophy, and in all the practical life of man. The human mind inevitably regards the constructs of its own imagination and intellect as significant and trustworthy representations of the real beings and actual events of the world, whenever such constructs seem necessary for a satisfactory explanation of experience. Religion must explain itself to itself; and its explanations, like all other explanations, must take hold on reality. Physical science does the same thing; and the social sciences are no exception to the same rule. The combined work of imagination and intellect has produced many mythical entities for the explanation of man's experience with concrete things; nor can any one be sure that modern physics and chemistry will not soon find their postulated entities ill-suited to perform the office of explaining the world of widening experience in a wholly satisfying way. But, on the other hand, the vain and ineffectual contortions

of the current phenomenalism in science show plainly how insistent man is upon finding a ground for *his* conceptions and perceptions of things in a world of reality that is *not* dependent upon these conceptions and perceptions. The One Being of the World must, indeed, be more and more looked to, as it were, for the explanation, in reality, of the constructs of both the scientific and the religious imagination. What is sought by both is the completion and harmonizing of the different factors and aspects of man's total experience with himself and with his environment. This ontological belief, or postulate, or reasoned conviction—whichever it may be, or by whatever other name one may elect to call it—is as necessary to the particular sciences or to philosophy, as it is to religion. It is as warrantable in religion as it is in science or philosophy.

The other important fact as to the mode of the procedure of the religious consciousness in its endeavor to teach truth of Reality is its 'anthropomorphizing' character. It is, indeed, customary in discussing the classification of religions and the principles of religious development, to speak of one class as peculiarly 'anthropomorphic.' 'Anthropomorphism' is not infrequently considered to be a somewhat definite stage in the evolution of the religious consciousness. In the more comprehensive, but quite defensible and proper use of all these terms, however, they are applied to every kind and stage of the religious idea. 'Spiritism' constructs its divine beings after the analogy of man's existing knowledge of his own spirit, and projects these constructions into the totem, the fetish, the phenomenon of nature, or physical thing, or into the deceased ancestor. In the shamanism of the Mongolian-Tartar tribes, the nature worship of ancient Egypt, the fetishism of Africa and the South Sea Islanders, the totemism of the Red Skins, and even in the survivals of these lower conceptions and practices found to-day among civilized and Christian, as well as Mohammedan, Brahmanical or Buddhistic communities, the process is the same. Polytheism is, of course, distinctly anthropomorphic in its conceptions of the gods. But so is Pantheism. The Atman of Brahmanism can be conceived of and worshiped as a World-Soul only as the result of the personifying process. Of course, the 'personal' God of Theism is anthropomorphically conceived of; He is the construct of imagination and intellect, in a sort of combined effort to satisfy man's esthetical, ethical and more distinctly religious needs.

What, however, is quite too often forgotten is that the positive sciences are all, of necessity, equally anthropomorphic. Science knows the world, and explains the world as a system of interacting and self-like existences. As I have shown² by a searching analysis

² In my work called 'A Theory of Reality.'

of all the so-called 'categories,' of which the particular sciences find themselves obliged to make use, every conception of these sciences is derived from an experience with self-like activities, and every relation is stated in terms, as though it were between self-like beings. Natural science is through and through anthropomorphic. Indeed, from the psychological point of view, knowing is anthropomorphizing. On this point the Kantian critical philosophy is unanswerable.

But if the metaphysics of physics, and the metaphysics of religion, have their roots in the same psychological process, and stand or fall together when judged by the merits of their psychological genesis and growth, the same thing is not equally true from the ethical and practical points of view. Positivism, or phenomenalism, or agnosticism, in any one of their various forms, does not shock the sentiments and determine practice, to the same extent in science and in religion. A man may, with a certain claim to rationality and a certain satisfaction of his scientific aims, continue in the service of science, undisturbed by either a naïve or a systematic, but agnostic, theory of Reality. If, however, one is convinced that one's conception of the Divine Being is *only* the shadow of one's own fear, or desire, thrown against the background of a wholly unknown and unknowable Reality, then one must either adore one's self, which can cast so substantial a shadow, or one must cease to adore at all. The Object of a truly religious belief and worship must find a place somewhere in the believer's and worshipper's theory of Reality.

Now all this matter, as thus far discussed, concerns only the interest of a psychological investigation into the phenomena of the religious consciousness as ontological. The conclusion is that this form of man's conscious life and conscious, creative activity, is ontological; and that the important features of its ontological aspect are such as characterize the use of imagination and intellect in science and in philosophy, as well as in the so-called 'common-sense' operations of daily life. How far this ontological anthropomorphizing, or constructing of a world of reality as a kind of super-human and yet self-like Being, is rational and critically defensible, psychology can not pronounce. That is a question for philosophy, in its branch of so-called 'Epistemology,' or critical theory of knowledge, to undertake.

One point more, however, deserves more than a passing notice. Both scientific religion—if such a thing there be—and devout science prefer to use somewhat different terms to describe the total attitude of the rational Self toward the religious Object and toward the fundamental entities and laws of the particular sciences. The contrast is more frequently expressed by such terms as 'faith' and 'knowledge.' It might even be said that the goal which intelligence seeks

is a rational faith toward God; but toward the entities and laws of the particular sciences it is certified knowledge at which one should aim. It would be found, on further examination from the psychological point of view, that such a distinction is by no means absolute, even if we confine our attention to the customary opinions and expressions of those who advocate the distinction most strenuously. Such an inquiry, however, involves another set of considerations from that before us at the present time.

GEORGE TRUMBULL LADD.

YALE UNIVERSITY.

DISCUSSION.

SOME POINTS IN MINOR LOGIC.

A RECENT writer in *Science* slips into a curious error in phraseology. He allows himself to speak of a 'superabundance of physicians going hand in hand with a shortage of patients' as being attributed to, etc. But the superabundance of physicians is the same thing as the shortage of patients (looked at from a different point of view), and a thing can not go hand in hand with itself. This is a sort of lapse which is not infrequent—to make the mistake of supposing that 'There are too many physicians for the patients' and 'There are too few patients for the physicians' are two different statements, instead of being two different forms of one and the same statement. The standardization in logic of the phrases 'same or different statement,' 'same or different form of statement,' would conduce very much to clearness in the treatment of equivalent propositions, where it is in general, of course, a question of a change in the figured copula (see 'Dictionary of Philosophy and Psychology,' article 'Proposition'), instead of, as above, a change of aspect. For instance:

$$(1) \left\{ \begin{array}{l} \text{All } a \text{ is } b, \\ \text{None but } a \text{ is } b, \\ \text{No } a \text{ is } b, \\ \text{All but } a \text{ is } b, \end{array} \right.$$

are all different statements, while

$$(2) \left\{ \begin{array}{l} \text{None but the brave deserve the fair,} \\ \text{All who are not brave do not deserve the fair,} \\ \text{None deserve the fair who are not brave,} \\ \text{All but the brave are undeserving of the fair,} \end{array} \right.$$

are all different forms of one and the same statement. The term

proposition has a certain vagueness of meaning in this connection: there is a sense—and a very important sense—in which all the members of (2) are one and the same thing; but we should almost hesitate to say that even

there is some *a* which is *b*,

there is some *b* which is *a*,

are one and the same *proposition*. Hence the need of the term *statement*—we feel instinctively that in this word we have reference to the very essence of the thing said, to that which gives it its distinctive value as a particular description of the universe.

The error here referred to may be regarded as a sort of minor fallacy; it is perhaps deserving of a name, since to name a fallacy conduces, no doubt, to the avoiding of it. This might, *faute de mieux*, be called the fallacy of taking one to be two.

There is an error of an opposite kind which also needs to be avoided. I once had, at table, this little conversation with a child of eight. We had begun to express our impatience at waiting too long for our next course, while our waiter was to be seen attending to some other people; she said: 'But how do you know that it is our waiter?' I replied (too carelessly, a little impatient at her lack of observation), 'For two reasons: because we have been on this ship for three days, and because I have eyes.' But she said, after a moment's reflection (being better at reasoning than at observing), 'That is not two reasons—it is only one reason.' This was rather an acute observation for so young a child—a detection of the fallacy of taking to be two things what are merely the two elements of one thing.

It was the same child who, at the age of four, when I said 'If you are good this morning I will take you down-town with me this afternoon,' was wont to ask me 'And only?' It would be a distinct safeguard against the danger of committing the fallacy of the wrong conversion if, instead of taking the reverse statement for granted, the habit should become widespread of always stopping to ask 'And only?' The statements All *a* is *b* and Only *a* is *b* (\equiv None but *a* is *b* \equiv all *b* is *a*) are together equivalent to the statement that *a* and *b* are of coincident application; but each is in need of independent investigation, and there is nothing that the inconsequent reasoner is so likely to overlook as this fact. One of the psychologists has lately said: If *a* is *b*, *c* is *d*; and, *by implication*, if *c* is *d*, *a* is *b*. The habit of remembering that 'Only if *a* is *b* is *c* *d*' must be the answer to a separate question had not become, with him, ingrained.

A still earlier instance of reasoning occurred when this same child was only three. I was doing something which she wished me not to

do, and she said, 'Don't do that!' I said (thinking the logic was good enough for her), 'Must I do everything you want me to do?' and she replied (again after a moment's pause for reflection), 'No, but you must not do anything that I don't want you to do.' Her point, I know, was not so much that one rule held, in our relation with each other, and the other did not, but rather the purely logical consideration that the major premise which was required to justify my implied protest was the second statement and not the first. I have more than once mentioned this incident to people who were not at all noted for lack of intelligence, and found that they were far from being alert in perceiving that there is any difference between the two statements. If I had said, 'Must I do the things you want me to do, and *only* such things,' her logical sense would not have been offended.

I may mention one more instance of an early interest in logic. It was six months earlier that this child woke up one morning, and, for no particular reason, began calling her mamma Frary. But Frary was the name which she had been giving to the cook, whose real name was Mary. So presently she exclaimed, 'But the cook is Frary!—then mamma is the cook!' This was a piece of reasoning which was performed not for any practical purpose which the conclusion could serve, for the conclusion was manifestly absurd, but for pure interest in the sport. It is probably the earliest instance on record of an interest in the syllogistic form as such.

I am reminded of these instances at this time, because the young lady is now nineteen years old who showed such an early acuteness in questions of logic, and when I took her this sentence the other day about 'a superabundance of physicians going hand in hand with a shortage of patients,' she failed to detect, of her own accord, that there is anything curious about it. Must this be taken to mean that education has a deadening influence upon one's native reasoning powers?

CHRISTINE LADD FRANKLIN.

THE THIRD MEETING OF THE AMERICAN PHILOSOPHICAL ASSOCIATION.

THE American Philosophical Association held its third meeting in Murray-Dodge Hall, Princeton University, on Tuesday, Wednesday and Thursday, December 29–31, 1903. There were morning and afternoon sessions on Tuesday and Wednesday, and a morning session on Thursday. At the afternoon session on Tuesday, President Woodrow Wilson welcomed the association to Princeton

and the president of the association responded to the address. The members of the association were entertained by Dean and Mrs. Fine at tea, on Tuesday afternoon, at the Jonathan Edwards House, and were received by President and Mrs. Wilson in the evening at 'Prospect.' The president of the association, Professor Josiah Royce, delivered his address Wednesday evening on 'The Eternal and the Practical.' It was a critical discussion of pragmatism. Professor Royce aimed to show, with his characteristic felicity and skill, the impossibility of a pure pragmatism and its need of supplementation from the philosophy of absolutism. The address was followed by a smoker at the Princeton Inn and an informal discussion in which the members from Chicago were invited to take a special part. At the business meeting on Wednesday afternoon the following officers were elected: President, Professor George Trumbull Ladd, Yale University; Vice-President, Professor Frank Thilly, the University of Missouri; Secretary-Treasurer, Professor H. N. Gardiner, Smith College; Executive Committee, new members, Professor James H. Tufts, Chicago University, and Professor H. Heath Bawden, Vassar College. The other members of the Executive Committee are Professor William A. Hammond, Cornell University, and Professor Frederick J. E. Woodbridge, Columbia University.

The sessions were well attended and the papers were discussed with considerable interest and fullness. The following papers were read:

On the Relation of Appreciation and Scientific Descriptions of Values: Professor WILBUR M. URBAN.

Objection was taken to the idea that values are not communicable because based on attitudes of mind and hence not describable. It was urged rather that every description involves appreciation and that every new appreciation involves description. But it is not necessary that description should always be the same in kind. We may recognize appreciative description which aims at ideal constructions whereby worth experiences can be communicated, and scientific description which, abstracting from worth experiences in the interest of causal connection, aims at constructing a system of nature. Both kinds of description have the same point of departure, namely, concrete experience, and worth experiences may be described as facts in the order of nature. Their real significance is not thus revealed, however, but only in relation to the total attitude of the individual. Scientific description finds that the nature of the abstractions it has to make is determined by uniformities in appreciative description.

Purpose as a Logical Category: Professor JAMES E. CREIGHTON.

This paper is an examination of the current 'pragmatic' or 'teleological' view that regards thought as an instrument that finds

its function in the realization of the practical ends of life. The main arguments by which this theory is at present supported are discussed and criticised, and the chief difficulties and assumptions of the position developed and exhibited. These difficulties are enumerated under the following heads: (1) The ambiguity in the pragmatic use of the term 'practical purpose'; (2) the necessary individualism and subjectivism in the position; (3) its failure to afford any principle by which experience can be unified; (4) the dualism between 'antecedent experience' and 'reflective thought.' The general conclusion of the paper is that pragmatism is only possible *within* the logical and ontological position that it supposes itself able to supersede.

A Thesis: Hegel's Voyage of Discovery reaches as its Goal an Insight into the Necessity of Goodness and Righteousness in an Absolute Being and into the Consequent Necessity that the Absolute has the Form of Personality: Dr. WILLIAM T. HARRIS.

Dr. Harris developed this thesis by an examination of various passages from the writings of Hegel.

Jonathan Edwards: Professor ALEXANDER T. ORMOND.

The philosophical inheritance of Edwards was first discussed and his direct and indirect dependence on historical philosophy exhibited. Edwards' philosophical creed was then sketched. The key to its exposition was found in the identification by Edwards of God's decrees and God's activity in realizing them. The latter may involve an historical process but this is but the expression of God's eternally active decreeing.

General Discussion on the Question: What place has Esthetics among the Disciplines of Philosophy? Professor GEORGE SANTAYANA, Professor WILLIAM A. HAMMOND, Dr. ETHEL D. PUFFER, Professor F. C. SHARP.

Professor Santayana claimed that although it would be easy to delineate any sort of esthetic field ideally, actual esthetic interests can not be covered by any one discipline. Esthetic judgment and poetic activity are in their living interest prior to psychology. Nor is there a separable branch of ideal science called esthetics. The discipline can not be a branch of ethics, for esthetic values remain valuable in isolation from rational goods. A separate esthetic science is, therefore, impossible. There may be a psychological description of esthetic experience in its natural conditions, and an art of rational criticism in which esthetic values are compared and judged according to the contribution they make, directly or indirectly, to all human good.

Professor Hammond gave a brief statement of the historical differentiation of the discipline of esthetics from the other branches of philosophy, and then discussed in particular its relation to psychology, ethics, sociology and metaphysics. He laid emphasis on its character as a subject-object science, and pointed out that it was consequently impossible to give a correct account of esthetic experience by dealing exclusively with the subject or object of such experience.

Dr. Puffer pointed out the failure of empirical and genetic methods in psychology and sociology to give an adequate definition of beauty. These methods usually attempt a definition in terms of pleasure, but do not show what it is in the object which gives the pleasure. A definition should be attempted from a philosophical point of view, and this in spite of the frequent demand for immediate application of the definition to specific cases. Failure to meet this demand does not necessarily impair the value of the definition, because direct application to specific cases is not to be regarded as the essential thing in a definition. To form a definition of beauty, the end which beauty serves should first be noted. This is expressed in the historic conception that beauty brings about a reconciliation between the strivings of the individual and his world. The conditions of this reconciliation in the individual are an inhibition of action together with a heightening of tone. It is the aim of esthetic science to discover the characteristics of objects which lead to this result.

Professor Sharp urged that a large proportion of the problems of esthetics are admittedly psychological in nature. The objections raised against merging esthetics into psychology are two: (1) The alleged existence of a standard of beauty, the recognition of which is held to constitute esthetics a normative science; (2) the alleged impossibility of explaining the nature of beauty without the aid of metaphysics. With regard to (1), it can be shown that a standard of beauty is indeed within the range of possibility, if beauty be defined so as to remove the inconsistencies in the common use of the word. But the nature of such a standard can be exhibited and its existence demonstrated by methods that are purely psychological. As for (2), every so-called metaphysical deduction of beauty worthy of serious consideration turns out to be in reality the outcome of a psychological analysis, and is taken to be other than it is solely through a confusion of thought.

The Concept of Consciousness: Dr. RALPH BARTON PERRY.

The term consciousness is currently used to denote a real characterization of that to which it is implied. It is extended often so universally, however, that it fails to distinguish anything, for to apply consciousness to everything robs the term of genuine meaning.

It is urgently necessary, therefore, to determine the field in which the term has appropriate use. This field would appear to be psychology, because the psychologist is the scientist who makes consciousness the peculiar and special object of investigation. The term in its current use in other fields of inquiry, notably in subjective idealism, seems to yield confusion rather than clearness.

The Analysis of Consciousness: Dr. GEORGE R. MONTGOMERY.

Analysis is not mere division, but should preserve the integrity of the whole and the mutual relation of parts. This is done, for instance, by the mathematical analysis into x and y functions in a system of coordinates. This conception of analysis avoids pluralism and best represents the meaning of analysis wherever used effectively. In applying this conception to consciousness, consciousness itself must be the primary point of departure, rather than the word experience or the phrase 'the given.' In such an analysis we must not confuse with the whole of consciousness one of the elements found in it. The parts are abstract in relation to the whole. The subject which results from the analysis into subject and object, is not the supporter for the whole experience. The ego must be distinguished from the epistemological subject. The subject can be examined quite as well as the object, because the individual consciousness is doing the examining.

The Meaning of the Psychical from the Standpoint of the Functional Psychology: Professor H. HEATH BAWDEN.

The psychical is the process of experience as contrasted with its content. This process is always a relatively tensional phase of experience in which action is undergoing reconstruction. In logical terms, the psychical is the copula. The psychical (*i. e.*, this process of reconstruction) is not as such the object-matter of psychology. The datum of psychology must be content, not process. The attempt to state process converts it into content. The psychological analysis of the content of experience—the structural analysis—must be interpreted in terms of its value for the process, however, and this interpretation is the main import of the functional psychology. The content of consciousness is essentially social in character. The psychical individual simply represents the focusing of the larger system of social experience in one mode of reconstruction. Psychology, to use Professor Dewey's language, 'is the attempt to state in detail the machinery of the individual considered as the organ or instrument of social progress.'

Some Peculiar States of Consciousness: Professor JAMES H. LEUBA.

Under this title Professor Leuba discussed faith as a special state of consciousness. It is to be distinguished from the intellec-

tual assent called belief, although it contains intellectual as well as conative and affective elements, and it is not confined to religious experience. Instances of the faith consciousness, as in John Wesley, were examined in order to ascertain the proper characterization and conditions involved. Faith is usually preceded by a period of expectation and longing, and when it is attained it constitutes a sustained emotion, often involving great activity and acuteness of perception, but excluding from the possessor's interests whatever is incongruous with it. It is different from all other emotions, especially the emotion of love. Platonic love is, however, probably the same as faith.

The Resemblance of Twins in Mental Traits: PROFESSOR E. L. THORNDIKE.

Professor Thorndike, in a preliminary report of a study of the mental resemblances of twins,¹ stated the results of thirteen tests of thirty-five pairs of twins. The coefficients of correlation ranged from .60 to .80. The results appeared to the author to give indubitable proof of the influence of heredity upon mental traits. Not much of the resemblance found could be attributed to similarity of training, since the resemblance was nearly as great in the case of traits little subject to the influence of training as in the case of those much more so. So far as the measurements went, mental capacities seemed approximately as much due to inborn qualities as are physical traits. The opinion that twins are divided sharply into two classes, those nearly identical and those little, if any, more alike than ordinary siblings is opposed by the facts. Both in stature and in the mental traits studied the resemblances shade off continuously from great to less. The embryological theories based on the supposed sharp division appear to need critical examination. Mental resemblance appears, largely independent of physical resemblance, the twins who were most closely similar in appearance, not being so in mental traits. Even among the mental traits there is a decided specialization, resemblance in one trait not being at all closely correlated with resemblance in others.

The Establishment of Association in Hermit Crabs: DR. EDWARD G. SPAULDING.

Dr. Spaulding reported the results of experiments on the powers of hermit crabs to learn from experience. The experiments were made at the Woods Hole Laboratory with the aid of the Carnegie Institution. The power to modify behavior so as to form new and lasting habits of response to certain stimuli was demonstrated and

¹ This study was made possible by a grant from the Esther Herrman Research Fund of the New York Scientific Alliance.

roughly measured. The learning consisted not of the selection of one from several reactions favored by inborn constitution, but of a less favorable case for acquisition, namely, a response contrary to one strong native tendency, positive heliotropism, and favored only by the tendency to approach a sensed food supply. The crabs learned to go from a light to a dark section of the aquarium through two openings in a screen. After the association between the situation 'food and screen inserted' and the response 'going through opening in screen' had been established, the crabs reacted similarly to a presentation of only a part of the stimulus, namely, the insertion of the screen. This Dr. Spaulding held could be interpreted as a response to a representative or imagined stimulus.

The Scholastic Notion of the Infinite: Rev. L. VAN BECELAERE, O.P.

After pointing out the distinction between the infinite in the sense of a something with undetermined limits (negative infinite) and the infinite with no limits (positive infinite), Father van Becelaere gave the scholastic answers to the problems of the origin of the idea of the infinite and of the objective existence of the infinite. The idea of the infinite was rated among the acquisitions of experience. The actuality of the infinite as a limitless object existing at any one time was denied by St. Thomas for the reason that, being made up of countable parts, it was itself limited. This argument has been denied conclusive force by some scholastic writers, and St. Thomas himself was at times apparently willing to allow its lack of perfect adequacy or at least was conscious that it could be regarded as inadequate by others. The possibility of an infinite series was conceded by the scholastics.

The Law of Veracity: a Study in Practical Ethics: Professor GABRIEL CAMPBELL.

Can we justify Kant's pronouncement as to the absolute valuation of truthfulness? Ethnic appreciations are anomalous. Jurisprudence is most exacting. Man takes refuge in the fictitious. Even warfare is becoming scientific, truthful. A lie to save life would be based on mere presumption. The question as to risk would always be open. Intelligence can not lie. Freedom needs a perfect moral system; religion, absolute sincerity; public life, faith in man.

The Chief Factors in the Formation of the Moral Self: Professor JAMES H. TUFTS.

The elements found in the moral consciousness may be due to three sources: (a) Natural selection, operating in connection with variation and heredity, gives the instincts which furnish the stuff or content of life, and also provides the intelligence which is to control, and the emotional capacity which forms a factor in evaluating

ends and reinforcing or inhibiting action. (b) Social heredity and education, using the former term for the so-called 'imitation' and the latter for the positive influence through praise and blame, ceremonial and art. This may lift the child to the level of the preceding generation, but can not give progress. (c) Progress must come through active reflection on some experience or situation, and a consequent rising to meet it. The factors which develop character and progress are to sought, on the one hand, in the economic, intellectual and artistic development of civilization, and, on the other, in the social environment. Religion reinforces both factors. Progress through natural selection is by a 'back-door' method; through social heredity and education it is by a 'front-door' method, and such progress is transmitted through social heredity and education.

The Summum Bonum: Professor E. B. MCGILVARY.

The good is that object of desire which does not subsequently awaken an overbearing regret. The *summum bonum* is either the single greatest good (*supremum bonum*) or the series of greatest goods which, taken as a series, is of all competing series the most desirable (*bonum consummatum*). The common elements of various *bona consummata* constitute the common good, which consciously or unconsciously exerts a controlling influence on morality.

Intensity: Dr. WILMON H. SHELDON.

When the instances of intensity cited by scientists are examined, they are all found to consist of transitive facts, as for example, sensations, velocities, temperatures. It would appear that intensity resides in such facts only. Transitive facts may differ in amount, may be regarded as equal or as more or less, but they are incapable of measurement because measurement involves superposition. Only the permanent can be superimposed. This lack of measurably distinguishes intensities from extensive quantities. As transitive facts are the changes in the world, intensities are to be regarded as causal factors.

The Present Want of an Educational Ideal: Rev. Dr. FRANK SEWALL.

The elective system leads to waste of educational energy and only emphasizes the need of an educational ideal felt alike by students and faculties. Education is futile without ideals as controlling ends. Dr. Sewall enumerated the ideals of the past and found in mechanism and commercialism the ideals of the present. As these latter do not educate, new ideals must be set up. In attempting to form new ideals, it must be noted that all real control is now subjective and that religion and philosophy must be constructive

forces. These demand a personal ideal and the law of service as the moral law of the universe.

The Interpretation of Aristotle, Met. Z. 4. 1029 b 23-1030 a 6: Professor W. ROMAINE NEWBOLD.

The passage deals with the question whether there can be a real definition of that which corresponds to the phrase 'white man.' The difficulties in interpretation are to be removed in part by emendation of the text. The passage recognizes two kinds of faulty definition, the second of which is applicable to the case in question. There can be no real definition of 'white man,' because the content to thought of the phrase is different from that of the object, and its use as the predicate of a proposed definition is an attaching to the thing itself of a predicate different from it.

Dr. Cloyd N. McAllister made a preliminary report to the association on Thursday morning, of investigations on movements of the eyes made at the Psychological Laboratory of Yale University.

REVIEWS AND ABSTRACTS OF LITERATURE.

Experimental Psychology and its bearing upon Culture. GEORGE M. STRATTON. New York, The Macmillan Co. 1903. Pp. 338.

As the title implies, the author's purpose is to point out some of the principal results achieved by experimental psychology, and to determine their deeper implications. 'On this account the book is quite as interesting from the standpoint of philosophy as from that of pure psychology.

The subjects treated are these: The beginnings of experimental psychology; the character of the experiments and their distinction from those of physiology; the possibility of mental measurements; the unconscious; illusions and their significance; experiments on mental space, particularly the space of the blind; the harmonies and discords of space-perception and its place in experience (the relations between visual and tactual space, non-Euclidean perceptions); memory; imitation and suggestion; the elements of art; the connection of mind and body; spiritual implications of the work.

In a certain sense the book is popular; for the topics are such as are of interest to most educated people, the different chapters are practically independent of each other, and the language is not technical. Yet Professor Stratton digs well below the surface, and his discussions are so luminous and so sane, his illustrations and experiments so well-chosen, his sense of the topic so keen, that the expert will find much to profit by. The style is self-restrained and yet full of warmth and vividness. Best of all, perhaps, one can not help finding a certain moral fiber behind it

all, and modesty and absolute fairness and frankness; to say nothing of ingenuity and sense of proportion and the turn of humor that lightens things up every now and then.

As a text-book this work can be used successfully even with elementary students. The better ones amongst them appreciate it thoroughly, and though the others find it hard at first, they get a great deal out of it. Yet the instructor must be on his guard; for it reads so easily with him that he is likely to forget how much it sometimes takes for granted. The discussion of the relations of mind and body is not much use to a student who assumes throughout it all that mind and brain are the same.

Such criticisms as we have to offer are concerned with minor points.

In the first place the monist may fairly complain of some neglect, for while it is suggested (p. 290) that certain objections to parallelism might be removed by monism, the author gets into a discussion of idealism without first telling how this could be done. The discussion of the possibility of mental measurements is, perhaps, not so well thought out as some of the others. The claim that every mental phenomenon is one and indivisible (and that, therefore, mental measurements are impossible) can hardly be answered by saying, 'So is a tree' (p. 48); for though we can not break a large tree up 'into a smaller tree plus a certain increment' we certainly can break both trees up into cordwood or sawdust and get out of one something exactly similar to what we get out of the other plus the increment. In this sense a tree *is* a compound, and a sensation is not. Again, the objection to giving space relations as well as time relations to mental phenomena can hardly be met by the Anselmic argument that 'many space-objects [such as the distorted lines in Zöllner's figure] have their existence only in consciousness' (p. 52); for that simply means that they are fictitious, not that they are parts of the mind. As a matter of fact the psychologist does not measure the space relations of pure fictions; he measures the distortion produced in real objects by mental functions, and that does not imply that the functions themselves are phenomena in space (as they are in time). Thus we may admit that space-measurements are of value to psychology but still persist in 'denying space-attributes to the mind.' Finally, the possibility of hearing several musical tones at once may be sufficient to disprove the doctrine that in time 'experiences can come only in single file'; but it does not prove 'that time itself has more than one dimension' (p. 160); for what are the temporal relations in the dimension of simultaneity that correspond to nearness and distance in the dimension of succession? Are not the relations really the reverse of those assumed in this discussion? The very narrowness of a path in space along which things can come only in single file proves that it has breadth of some sort, while the lack of further temporal relations amongst simultaneous events proves that time has none!

Two errors of proof-reading are worth correcting. On p. 48, margin,

for *quality* read *quantity*; and in p. 303, l. 26, for *immorality* read *immortality*.

H. AUSTIN AIKINS.

WESTERN RESERVE UNIVERSITY.

JOURNALS AND NEW BOOKS.

MIND. October, 1903. *The Refutation of Idealism*: G. E. MOORE. — Modern idealists all hold that '*Esse is percipi*.' This proposition is insignificant unless understood synthetically; yet if it were thus understood it would not be believed, for 'the idealist maintains that object and subject are necessarily connected mainly because he fails to see that they are *distinct*, that they are *two* at all.' 'The object when we are aware of it is precisely what it would be if we were not aware of it.' The existence of material things is as directly apprehended and, therefore, as certain as the existence of our experiences of them. *Kant's Transcendental Idealism and Empirical Realism*: C. M. WALSH. — Kant has two conceptions of 'empirical reality.' He describes it first, as simply the actual and possible experiences of finite individuals; second, 'through a lack of definition and a slurring over of distinctions,' he reaches a conception of the empirically real as the object of a *single* experience which is *outside* individual experiences though not *transcending* them. It is this second conception which he used in opposing Berkeley; and it is inconsistent with his first conception as well as with his general doctrines of Transcendental Idealism. *The Physiological Factors of the Attention-Process*, III.: W. MACDOUGAL. — The results of observations and experiments recently made by the author upon the *fading, reappearance and alternation* of visual images, are in accord with his general theory of attention (previously published in *Mind*), 'and justify the assumption that the apparent tract from the intrinsic muscles of either eye is specially connected with the tract leading from the retina of that eye, so that the excitation process initiated in it by contraction of the muscles discharges not only through the motor-circle but in part through the retino-cerebral tract, *augmenting* in the latter the excitement which is directly due to the visual stimulus . . . and also determining the *mode* of attention. . . . How exactly the two tracts are connected . . . we can not yet say.' *The Disjunctive Judgment*: G. R. T. ROSS. — The author maintains with Keynes and against Bradley and Bosanquet 'that it is the function of the disjunctive judgment, both in science and in practical reasoning, to be exhaustive and not necessarily exclusive.' The author's most striking argument is his proof that on the exclusive theory the proposition 'A is either B or C' would be equivalent to the proposition 'A is either not B or not C,' which would in many cases lead to absurdity. Dis-

cussions: *Note on the Philosophy of a Supposition*: W. J. WHITE. — Suppositions or 'conceptions not taken to be true' fall into three classes: (1) Suppositions of art, which are made for their own sake and not for any ulterior end. (2) Suppositions of practice, made for the sake of a desired end and restricted in their application to the controllable aspects of the future. (3) Suppositions of theory, 'hypotheses,' which are subdivided into illustrative and constructive according as the end sought is classification or discovery. *Note in Reply to Mr. A. W. Benn*: A. E. TAYLOR. — The writer defends his criticisms of Mr. Benn's views on early Greek philosophy (*Mind*, N. S., No. 45), against the latter's reply (*Mind*, N. S., No. 46), but disclaims any intention to discredit Mr. Benn's scholarship. Critical Notices: F. W. H. MYERS, *Human Personality and its Survival after Bodily Death*: W. MACDOUGAL. R. B. HALDANE, *The Pathway to Reality: Being the Gifford Lectures delivered in the University of St. Andrews in the Session 1902-3*: H. RASHDALL. L. RUSSE, *Geist und Körper, Seele und Leib*: D. MORRISON. J. S. MACKENZIE, *Outlines of Metaphysics*: S. H. MELLONE. New Books; Periodicals; Notes.

REVUE DE METAPHYSIQUE ET DE MORALE. September, 1903. *Controversy in Biology*: F. HOUSSAY. — This is due not to ignorance of facts but to the application of opposed categories to facts. One party says that observation denies spontaneous generation; the other, that logical necessity demands it. So too in the conflict about preformation and epigenesis. In our present stage of evolution, categories conflict; as we advance, their meaning will alter till they harmonize. *The Intrinsic Objectivity of Mathematics*: P. BOUTROUX. — Pure mathematics is not syllogistic or empirical, but synthetic. The metaphysical question presses: Is it objective or a free creation? It is a free reconstruction of an ideal objective (not physical) world, for its main concept (correspondence) could not have been constructed by us. *Essay in Ontology*: F. M. — The Universal Spirit (of which we are parts) creates real things and their relations *ex nihilo* by thinking them. We create nature every time we open our eyes. Spirit has two attributes, activity and resistance (the conservative tendency, inertia) which account for all the various characteristics of the outer and inner worlds. — Critical Studies: *Varieties of Religious Experiences* by Wm. James: H. DELACROIX. — This is the best psychological work on religion, but a psychological treatment of religion is insufficient. Religion includes logical, intellectual motives, and is not merely a matter of individual feeling; nor can it be viewed apart from institutionalism. — Practical Questions: *Medical Secrecy*: G. BELOT. — The writer takes issue with Dr. Ch. Valentine on the question: Is a doctor bound to disclose the fact that his patient, about to marry, is syphilitic? If others have a *right* to know this, they have also the *duty* of providing for the patient's care. — Obituary Notices: CH. RENOUVIER. — Philosophy in the Universities, 1903-4. New Books; Periodicals.

- De Boer, T. J. *The History of Philosophy in Islam*. Translated by Edward R. Jones. London: Luzac & Co. 7s. 6d.
- Eisler, Rudolph. *Wörterbuch der Philosophischen Begriffe*. Erste Lieferung. Berlin: Ernst Seigfried Mittler & Sohn. 25 m.
- Jordan, David Starr. *The Voice of the Scholar, with other Addresses on the Problems of the Higher Education*. San Francisco: Paul Elder & Co. \$1.50.
- Keller, Helen. *Optimism: An Essay*. New York: T. Y. Crowell & Co. 75 c.
- Pearson, Karl. *On the Inheritance of Mental and Moral Characters in Man, and its Comparison with the Inheritance of Physical Characters*. London: Anthropological Institute of Great Britain and Ireland.
- Schiller, F. C. S. *Humanism*. New York: The Macmillan Co. 15 + 297 p. 8vo. \$2.75.
- Selections from the Works of Herbert Spencer*. Edited by A. D. Hall. Boston: H. M. Caldwell & Co. \$1.00.
- Taylor, A. E. *Elements of Metaphysics*. London: Methuen. 16 + 419 p. 8vo. 10s. 6d.
- Thorndike, E. L. *Educational Psychology*. New York: Lemcke & Buechner. 4 + 177 p. 8vo. \$1.50.

NOTES AND NEWS.

IN so far as an explanation or even an excuse may be needed for the establishment of a new journal, it is hoped that this may be given by the contents and form of the first number of THE JOURNAL OF PHILOSOPHY, PSYCHOLOGY AND SCIENTIFIC METHODS. There are in Germany 'Centralblätter' for nearly all the sciences, and there are in all countries 'trade journals' for the applied sciences such as medicine and engineering. But there exists no journal covering the whole field of scientific philosophy, psychology, ethics and logic, appearing at frequent intervals and appealing directly to the interests of all professional students. It is a matter of importance at the present time that the relations between philosophy and psychology should remain intimate, and that the fundamental methods and concepts of the special sciences, now receiving attention on all sides, should be kept in touch with philosophy in its historic development. What may be accomplished by the prompt publication of short contributions is demonstrated by the *Comptes Rendus* of the Paris Academy, whose four-page articles cover nearly the whole scientific activity of France. A fortnightly journal is particularly suited for discussion, the interval being just long enough to permit of questions and answers. Finally the special function of such a journal is the quick and complete publication of reviews and abstracts of the literature. It seems evident

that a journal on these lines will cooperate with the existing reviews of philosophy and psychology. The plan has received the approval and support of the leading American students of philosophy and psychology.

THE American Psychological Association held last week its meeting at St. Louis under the presidency of Dr. Bryan. Professor William James, Harvard University, was elected for the second time president of the association. This honor was conferred upon him again after a lapse of ten years as an exceptional recognition of the unique place he holds among American psychologists. Professor Münsterberg, Harvard University, and Dr. Henry Rutgers Marshall, New York City, were elected as new members of the council.

A *British Journal of Psychology* will be edited by Professor James Ward and Dr. W. H. R. Rivers, of Cambridge University, with the co-operation of Messrs. W. McDougall, C. S. Myers, A. F. Shand, C. S. Sherrington and W. G. Smith. The first number will be published in January by the Cambridge University Press and the parts will thereafter be issued at irregular intervals, about 450 pages constituting a volume, the price of which is 15s.

THE Wilde readership in mental philosophy at Oxford, vacant by the removal of Mr. G. S. Stout to accept the professorship of logic and metaphysics at St. Andrews, has been filled by the election of Mr. William McDougall, now reader in experimental psychology at University College, London. Dr. W. G. Smith, who was appointed last year to the recently established lectureship on experimental psychology at King's College, London, has resigned to accept a similar position at the University of Liverpool. The council of King's College has elected to the post, Dr. C. S. Myers, of Cambridge. Dr. Smith was some time since instructor at Smith College, and Dr. Myers has recently visited the psychological laboratories of the United States.

At a meeting of the Trustees of Columbia University, on January 4, 1904, Professor George Stuart Fullerton, of the University of Pennsylvania, was appointed professor of philosophy in Columbia University. Professor Fullerton is at present in Munich engaged in research work.

PROFESSOR KUNO FISCHER, now in his eightieth year, has retired from active duty as professor of philosophy in the University of Heidelberg.

DR. CHAS. H. JUDD has been made acting director of the Yale Psychological Laboratory for the present year. At the same time an advisory committee on the laboratory has been appointed consisting of Professors Ladd, Duncan and Sneath.

WE regret to record the death of Dr. Arthur Allin, head of the department of psychology and pedagogy of the University of Colorado.

THE JOURNAL OF PHILOSOPHY

PSYCHOLOGY AND SCIENTIFIC METHODS

CONCERNING THE CONCEPT AND EXISTENCE—PROOFS OF THE INFINITE.

PROBABLY no other single term has played so grave a rôle in the thought of the world as the term Infinity or its verbal equivalents. Long before the days of Protagoras man believed himself to be somehow the measure of all things. And this faith, as if rooted in the very core of his being, as if an essential element of the ultimate definition of man, as if an absolute invariant under all transformation of the germ plasm itself whence he springs and derives his continuity, has survived every vicissitude of human fortune, marking and sustaining metaphysical speculation in every time and place. Actual knowledge is one thing, always imperfect and incomplete; but the spirit of knowledge is quite another, always insatiable and intolerant of limitations. Unlike experience and observation, curiosity has known no bounds; and questions about the infinite, already prominent in the childhood of thought, back yonder figuring conspicuously amid the primal rudiments of philosophy, have rather gained than lost in interest with the lapse of time and have not ceased to be in one form or another among the most fascinating that have engaged the human mind. Often these have been questions primarily of theology or of metaphysics, but not invariably so. For man can not live by these interests alone. He has had to measure and to count, and this homely necessity, fruitful mother of difficulty and doubt, independently set the complementary problems of the indefinitely small and the indefinitely large; and thus needs quite as stern and immediate as those of philosophy and religion, I mean the exigencies of science and especially of mathematics, demanded, in the very beginnings of exact knowledge, that the understanding transcend every possible sequence of observations, pass the uttermost limits of 'experience,' which, however refined or enlarged, remains always finite, and actually lay hold upon infinity itself. To this ancient, irrevocable demand thus urged upon the reason from every cardinal point of human interest, genius has responded as to a challenge from the gods, and I submit that the

response, the attempt of man to subjugate extra-finite being and bring it under the yoke of knowledge, has been the most sublime and strenuous and inspiring enterprise of the creative intellect of every age.

What of it? These centuries of gigantic striving, these ages of philosophic toil, this immeasurable devotion of energy and time and genius to a single purpose, the intellectual conquest of infinity—what has it all availed? Has any real advance been made? I speak of the conquest. I do not ask whether it has been accomplished. That might seem a trifle premature. I inquire whether, strictly speaking, it has been begun. Let not the import of the query be mistaken. Every one knows that seeking has compensations of its own and that these are oftentimes better than any which finding itself can give. So, conceivably, it might be with this problem of the infinite. It may be granted that, even supposing a solution to be unattainable, the ceaseless search for one, the unwearied high endeavor of the reason throughout the ages, presents a spectacle of which mankind, it may be, could ill afford to be deprived. It may be granted that incidentally many fine insights have been gained, which, though not solutions, have nevertheless permanently enriched the literature of the world and are destined to ennoble its life. It may be granted that in every time some doctrine of infinity, some philosophy of it, however imperfect, has been at least effective, has helped, that is, for better or worse, to fashion the forms of human institutions and to determine the course of history. Concerning none of these things is there here any question. As to what the question is there need not be the slightest misapprehension. The fact is that for thousands of years philosophy has recognized the presence of a perfectly definite problem, the most august of all her problems, namely, that of extending the dominion of logic, the reign of exact thought, out beyond every range of finite things into and over the domain of the infinite, and for thousands of years she has constantly striven to solve the problem. And now I ask—not, has it been worth while? for that is conceded—but has she advanced the *solution* in any measure, and, if so, in what respect and to what extent?

The answer, fortunately, is to be as unmistakable as the question. It must be understood, of course, that the 'problem' as stated is exceedingly, almost frightfully, generic, embracing a host of interdependent problems. Of all these, one is preeminent. Without its solution, no other *can* be solved; with its solution, any other *may* be eventually. That problem is the problem of definition, of discovering a certain principle, a principle of division, namely, that which separates the universe of things into its two most fundamental, mutually exclusive and, taken together, all-inclusive classes, the finite

and the infinite. It is, then, a problem of reciprocal delimitation, of telling precisely and finally what for thought the infinite is and what for thought the finite is.

Thanks to the subtle genius of the modern Teutonic mind, this problem has been at length completely solved, and our original question is answered: *the conquest has begun*. Four men,¹ Bernard Bolzano, Bernhard Riemann, Richard Dedekind and George Cantor, one of them an acute and learned theologian and philosopher with deep mathematical insight, the others profound mathematicians with a strong bent for metaphysics, quite independently and about the same time found substantially one and the same solution. And thus it is a distinction of our own time that within the memory of living men the characteristic mark of the infinite first failed to elude the grasp, and that the august term, after the most marvelous career of any in the history of speculation, has at last assumed the prosaic form of a perfectly precise and completely determined concept, and so been made available for the purposes of rigorously logical discourse. And, now, what is this concept? From among a variety of equivalent forms of statement, we choose the following: *A class (group, collection, assemblage, manifold) of things (elements) is infinite or finite according as it contains or does not contain a part to which the whole is equivalent in the sense that between the elements of the part and those of the whole there subsists a unique and reciprocal, or one-to-one, correspondence.*

The formation of this concept is to be regarded, I believe, one of the greatest achievements of thought; great as being in a sense the culmination of many centuries of arduous speculation; great as affording the means of meeting the necessity it has created for a reexamination and a juster evaluation of historic philosophies of the infinite; and greater still, I think, as containing the promise of future conquests in that realm transfinite whose boundary and character the concept itself defines. But is this judgment not extravagant? For the concept is so simple, so apparently independent of any elaborate system of subtle presuppositions, that one can not but wonder why it was not formed long ago. Frankly, there seems to be no very obvious reason why it should not have been, by some Greek, for example, or an acute scholastic. It must be confessed that no divinity has seemed to shape the course of research. Cer-

¹ Bolzano: 'Paradoxien des Unendlichen.' Riemann: 'On the Hypotheses which Lie at the Basis of Geometry.' Dedekind: 'Was Sind und Was Sollen die Zahlen,' also in English. Cantor's papers in Volume II. of *Acta Mathematica*, and elsewhere. Riemann, I should note, is here cited because he was first to point out the distinction between boundless and infinite manifolds. Bolzano, too, indicated the distinction between these adjectives, but seems not to have perceived its significance for geometry.

tainly there is no flaming evidence of a predetermined rational order in the development of curiosity. On the contrary, in the evolution of thought, as in that of the material universe, there appear to be vestiges of chance, and seeming waste meets the gaze at every turn. What of it? Had the concept in question been early formed, the history of thought had doubtless been different. But it was not then formed. Now that we have it, it is found to be simple, very simple, hardly more complicated than the Newtonian law of gravitation, scarcely more difficult to understand than the geometric depiction of the complex variable, almost as easy to grasp as the notion of the conservation of energy, or a hundred other central concepts of science. That is very shallow criticism, indeed, and foolish, that values ideas according to their complexity and identifies the simple with the trivial.

Any adequate account of the purely mathematical bearings of the concept in question would be a long story, and, even were it otherwise, should not be here attempted. For that the best recourse is to the cited works of the masters. My present concern is less remote. I propose to deal briefly with certain questions involved in recent discussions of the logical bearings and philosophic import of the idea. Among these discussions may be mentioned as most notable the beautiful essay, 'De l'Infini Mathématique,' by M. Couturat, the imposing treatise on 'The Principles of Mathematics,' by Bertrand Russell, and especially, because of their luminous character and rich suggestiveness, two essays by Professor Royce appearing respectively in volume I. of 'The World and the Individual' and in the October number of the *Hibbert Journal* of 1903. The work of the Frenchman has been extensively reviewed by Jules Tannery in volume VIII. of the *Revue Générale des Sciences*. I shall, therefore, confine my remarks to the mentioned discussions by the Englishman and the American. I take pleasure in confessing admiration for the masterful ingenuity of the discussions and in bearing witness to their *general* soundness. Nevertheless, despite the last-named quality, they appear to me to contain some more or less serious errors, one of them especially of the most radical nature, which, unless soon arrested in their course, are likely, particularly through the agency of Professor Royce's fascinating papers, to gain a wide and lasting currency.

These errors, arranged in the ascending order of their importance, relate (1) to the so-called *positive* quality of the Dedekind-Cantor definition of the infinite; (2) to the alleged implicit denial, in the definition, of the axiom of whole and part; and (3) to the alleged possibility of proving, by aid of the concept, the existence of the infinite.

We will examine these in order. Independently of Dedekind and Cantor, Bolzano defined finite and infinite substantially as follows: Suppose given a class *C* of elements. Out of these suppose a series formed by taking for first term one of the elements, for second term two of them, and so on. Any term so obtained is itself a class of elements, and is *defined* as finite. Now either the process in question will exhaust *C* or it will not. If it will, *C* is itself demonstrably finite; if it will not, *C* is *defined* to be infinite. Now, say Professor Royce and others, such definitions, thus depending respectively on the notions of exhaustibility and inexhaustibility, are respectively positive and negative. Bolzano affirmed and exemplified, though he did not demonstrate, the proposition that any class, if infinite according to his definition of the term, enjoys the property of being equivalent, in the sense above explained, to some proper part of itself. Now it can be, and, indeed, repeatedly has been, proved that every class that is infinite in Bolzano's sense, and no other class, possesses the property in question; accordingly this property might be taken as a basis of a definition of the infinite. Precisely this was done by Dedekind and Cantor, with the result that as a class is infinite or finite according as it has or has *not* a certain property, it is now, according to Professor Royce, the infinite which is positive and the finite which is negative. Really, it appears to me, this comes perilously near to juggling with words. For what is positive and what negative? Are we to understand that these have absolute as distinguished from relative meaning? I am reminded of Lotze's observation to the effect that an idea, once in the mind, is really *there*, at least there *then*—something *positive*, you see—and accordingly that the real problem of memory is not how we recollect, but how we forget. Perhaps the distinction has merit. If so, then I suppose we must allow that, a process being once started, its *continuation* is positive, its termination negative, in which case *not* to end would be positive and to end negative, and so it would turn out to be Bolzano's definition which is positive and that by Dedekind negative. Such simple dialectic, I do not for an instant imagine, can be in the slightest degree edifying to so acute a logician as Professor Royce. I have dwelt upon it in order to guard against the impression which his paper in the *Hibbert Journal* seems likely to give that in the author's judgment the value of Dedekind's definition, of which so much is there made and, for the most part, justly, too, somehow consists largely in its alleged positive quality. In and of itself the distinction of positive and negative is here of no importance. What is important is that, either of the definitions being adopted, the other states a derivable property of the thing defined. I am far from intending to say that, because the definitions are logically equivalent,

they must needs be or, indeed, are so practically, that is, for use in investigation. That is another matter, to be tested by trial, and, in this matter, I heartily concur with Professor Royce's preference.

I turn now to the assertion by Professor Royce and Mr. Russell that the Dedekind-Cantor definition of the infinite, of which the above italicized statement is the exact equivalent, in fact denies the axiom of the whole and part. It is, in the first place, to be observed that the statement itself avoids the expression *equality* of whole and part, and employs the term equivalence. As I remember it, the word employed by Dedekind himself is *ähnlichkeit*. But, says Professor Royce, that is what the axiom means by equality. Now it is just this statement which I venture to draw in question. Says Professor Royce, if we know that each soldier of a company marching along the street has one and but one gun on his shoulder, then even if we do not know *how many* soldiers or guns there are, we do know that there are precisely '*as many*' soldiers as guns. Now what the definition in question, taken severely, affirms, in this case, is that the assemblage of guns is 'equivalent or similar' to that of the soldiers. Note that we are speaking here of multitudes as distinguished from continua, a restriction which Professor Royce will allow, as he has adopted it in his own discussion now under review. If now in place of soldiers we write, for example, all positive integers, and in place of guns, all even positive integers, then the definition again asserts, as before, equivalence of these assemblages. Thus far nothing has been said about *number* as an expression of how many. *If* now there *be* a number that tells how many things there are in one assemblage, that same number tells how many are in any equivalent assemblage, and just because the number, *if there be one*, is the same for both, the two are said to be equal by axiom. But common sense, whose axiom is here in court, has neither found nor affirmed the existence of a number telling, for example, how many integers there are. It thus appears that the axiom supposed, regarded by common sense if you will, however unconsciously but nevertheless in intention, as applicable *only in case there be a number telling how many*, is in all strictness not denied by the definition in question. Numbers designed to tell how many elements compose an assemblage that is equivalent to a part of itself are of recent invention. These being once invented, it becomes a question, to be decided not under the spur of logical compulsion, but on grounds of pure *expedience*, whether equivalence shall be translated into equality. If the decision be, as seems expedient, favorable to such translation, then the old axiom of whole and part, if viewed as above, still remains uncontradicted, is still valid precisely wherein it pretended to be valid; it is merely that a new number-domain has been adjoined in which

the old axiom does not apply and never essentially pretended to, and on account of which, for the sake of good neighborship, it is compelled, not indeed to retract its ancient claims, but merely to assert them more cautiously and diplomatically.

There remains but little space to consider the third question, a question of the most fundamental importance, namely, whether it is possible to prove that there are infinite systems. That such proof is possible is affirmed by Bolzano, by Dedekind, by Professor Royce and by Mr. Russell. Not to delay the issue, I may say at once, as I have elsewhere pointed out,² not only that the arguments adduced by them are vitiated by circularity, but that this is bound to be the case with every such attempted demonstration. In support of my first contention, it will suffice to examine one or two specimens of the alleged demonstrations, all of them being variants under a single type. To verify my representations it will, of course, be necessary for the reader to compare them with the authors' own statements, which can be readily found in their above-mentioned works.

Bolzano undertakes to prove, among other like statements, the proposition that *die Menge der Sätze und Wahrheiten an sich* is infinite, this latter term being understood, of course, in accordance with his own definition above given. The attempt informally postulates: the proposition, such truths exist, is such a truth, *A*; *A* is true, is another such truth, *B*; so on; and, the indicated process is inexhaustible. Doubtless these postulates are all of them true, but the last is so evident a *petitio principii* as scarcely to deceive even a freshman.

In case of Dedekind's demonstration, of which Professor Royce has repeatedly expressed his admiration, as any one may well do, for the argument is exceedingly ingenious, the *versteckter Zirkel* lies much more deeply inwrapped, owing to the so-called positive form of Dedekind's concept of the infinite. On examination the proof is seen to postulate as *certainities*: (1) if there be a *t* (symbol for thought), there is a *t'* (call it image of *t*) having *t* as object; if there be two distinct *t*'s, the corresponding *t'*'s are distinct; (3) there is a *t*; (4) there is a *t* which is not a *t'*; (5) every *t* is other than its *t'*. These being granted, it is easy to see, by supposing each *t* to be paired with its *t'*, as object with image, that the assemblage \mathcal{O} of all the *t*'s and the assemblage \mathcal{O}' of all *t'*'s are equivalent. But by (4) there is a *t* not in \mathcal{O}' , which latter is, therefore, a part of \mathcal{O} . Hence \mathcal{O} is infinite, by definition. Now let this matter be carefully scrutinized. Assuming only these postulates and, of course, the possibility of reasoning, it is obvious that by pairing the *t* of (4) with its image *t'*,

² 'Concerning the Axiom of Infinity and Mathematical Induction,' *Bulletin of the American Mathematical Society*, May, 1903, Vol. IX.

then the latter with its t' , and so on, a sequence S of t 's is started which by (1) and (5) can not terminate. This S , too, by Dedekind's proof, is an infinite assemblage. Accordingly, *postulate* (1), *without which the proof is impossible, postulates in advance of the argument, certainty which, if the argument's conclusion be true, transcends the finite before the inference that an infinite exists is drawn.* And this disclosure of the circle in Dedekind's movement, and that of Russell's is just as beautiful, at the same time illustrates the truth of my second contention, which is that all *logical discourse of necessity presupposes certainty that transcends the finite.* Space fails me to exhibit this fact duly—I say exhibit, not prove, for to say the latter would be tantamount to assuming the possibility of a deductive argument A in order to prove that the conclusion of A can not be drawn unless it is assumed in advance. The fact, then, if it be a fact, and of that I have not the slightest doubt, is to be added to that group of fundamental simplicities which can at best be *seen*, if the eye be fit. For the present a single other exhibition of the fact must suffice. Consider the form: every a is a b ; every b is a c ; \therefore every a is a c . I merely point out here that the apodictic, *feeling*, which is the only and an absolute justification, without appeal, of the inference as such, is in no slightest degree *contingent* upon any question as to whether the assemblage of a 's is or is not equivalent to some one of its parts. The feeling of validity here transcends the finite.

C. J. KEYSER.

COLUMBIA UNIVERSITY.

ORGANIC IMAGES.

I WISH, in this note, to enter a plea for a more systematic study than has yet been made of the images of organic sensations and their complexes. It seems to have been taken pretty much for granted that the human mind is capable of images of *all* sensations.¹ Sully says outright that 'revival under the form of an image holds good of all classes of percepts or sense-impressions.'² Ladd, whom I understand to deny the specificity of organic sensations other than the kinæsthetic,³ appears to agree.⁴ James does not raise the ques-

¹ I write this note in some haste, and without an adequate review of the literature. This sentence may, therefore, be exaggerated; but it conveys my impression.

² 'Human Mind,' II., 1892, 281.

³ 'Psychology, Descriptive and Explanatory,' 1894, 118 f.

⁴ *Ibid.*, 234 f., 244.

tion. He begins his chapter on Imagination with the words: 'Sensations, once experienced, modify the nervous organism, so that copies of them arise again in the mind after the original outward stimulus is gone,' and his discussion does not take us farther into the body than the voluntary muscles.¹ In writing on emotion, however, he uses the phrases 'either the vivid feeling of the manifestations, or the idea of them': a phrase that seems to point towards an imaging or ideation in kind of the bodily 'expression' of emotion.² Lay asserts that 'we have mental imagery from all the senses; that is, some of us are conscious of it'; and his list of types includes images of pain, organic and emotive images.³ Stetson remarks that 'perhaps in early child life, all sense presentations are remembered equally well,' but that later on attention is predominantly directed upon visual memory. 'There is no doubt,' he goes on, 'that attention to a single sense tends to develop memory images of that sort.'⁴ The presumption that all sensations *can* be imaged appears to run through the general questionnaires, from Galton down.

I have lately been led to take a somewhat different view of the scope of mental imagery. My present belief, acquired inductively, may most easily be put in teleological form, as follows. I think that we have free images in the higher sense departments, where such images are needed. We must have images of sight and hearing, if conversation and the various other forms of intercourse are to go on.⁵ The stimuli act 'from a distance,' and are at any given time present only in small part. Images are therefore essential, as filling out the gaps in actual stimulation. Contrariwise, images are not needed at the lower end of the scale, for the organic sensations *sensu stricto*. We have our own bodies always with us; and the organic sensations will, consequently, be renewed or revived or reestablished when necessity arises; there is no biological sanction for the existence of images of these sensations. One might, therefore, expect to find a great variety of free imagery, say, in vision; and no free imagery at all, say, for hunger and thirst. Between these extremes, one would expect to find all sorts of intermediate stages. There may be sensations whose images can be evoked separately and voluntarily, like the images of visual sensations; there may be

¹ 'Principles,' II., 1890, 44.

² *Ibid.*, 458.

³ *Psych. Rev. Mon. Suppl.*, VII., 1898, 4.

⁴ *Psych. Rev.*, III., 1896, 409 f.

⁵ Even here, it is not safe to generalise too hastily. 'Nobody except the born blind and deaf,' says Lay (*op. cit.*, 4), 'would deny the existence of visual and auditory mental imagery.' French, however, declares that he has 'never been able to discover any distinct and separate auditory images' (*Psych. Rev.*, IX., 1902, 51). The point is not important for my present argument.

others whose images appear separately, but only involuntarily. There may be sensations or sense complexes which occur, voluntarily or involuntarily, not in separation but merely in total situations. Thus the choking or strangling which is characteristic of certain forms of anger might be incapable of separate recall in kind, but might be imaged along with the other sense components of the emotion when anger is recalled as a total experience. It seems to me to be important that these distinctions, and others like them, should be borne in mind, in the study of imagery; in other words, that the study should be systematised. It seems to me, too, to be extremely important that the image should be differentiated from the renewal or reestablishment or reinstatement of a sensation. Certain writers upon the subject—not all!—actually take the renewal or revival of peripheral sensations as evidence of the existence of imagery in the particular sense department. They take, *e. g.*, the 'lip feeling' of the word 'bubble' as evidence of motor imagery. But the lip feeling is, of course, a present sensation; not the image of a sensation. The lip feeling and the image of the lip feeling are as different as the sight of a red square and the image of a red square. They can be introspectively distinguished; they belong to different mental categories. If the lip feeling occurs as such, the chances are that the image of it does not occur.

I have no doubt, in my own case, of the existence of visual and auditory images,—free images, capable of separate voluntary arousal. I have no doubt, from the reports of others, of the existence of free kinæsthetic images, verbal or other. From my own introspection, I find it extremely difficult to say whether I have these images or not. I can very easily reestablish, in present sense experience, a kinæsthetic complex; the least cue of present 'muscular sensation' brings up the whole. But I doubt whether I have free kinæsthetic images; whether there is not a faint but real renewal of the sensations in all my kinesthetic 'memory.' In the sphere of cutaneous sensations, I can imagine pressures, and, I think, warmth; I do not think that I image colds. Taste images, if I have them at all, are extremely rare. Smell images seem to occur only sporadically and involuntarily. I notice with smells, however, something of what I have just mentioned with regard to kinæsthetic complexes. The least hint of a real smell may be amplified and changed by attention into almost anything I like. I can smell out, from the scent of a good cigar, a large number of flower perfumes: I seem to myself really to image these perfumes. If, on the other hand, I try without any olfactory cue to recall the smell of violets, I get to the verge of the smell image, tingle with the expectation of it; but I do not attain it. The organic sensations proper I can readily reestab-

lish, and almost as readily inhibit. When, however, I try to secure their images, I am almost invariably balked. Pain, though I have had a large and varied experience of it, I cannot image. If I think of stubbing my toe, I get either a picture of the event or a real sympathetic shrinking and quivering, that makes me move my toe uneasily. If I think of the pain of a particular tooth, some tooth-pain that I know very well, I have either a verbal description or an actual thrill in the tooth: I can find no pain-image. Neither, so far as my present introspection goes, have I any image of yawning, hunger, thirst, lust, tickling, nausea, dizziness, choking, stuffiness, 'sinking of the stomach,' and a number of other complexes that I am familiar with but have no name for. These things come to me either in surrogate images or as actual experiences.

It is notoriously unsafe, in this field, to generalise from one's own experience. And I am aware that there are marked individual differences as regards the lower forms of sensory images. I have found persons, trained in introspection, who assured me that they had, on occasion, flashing cold images, lust images, dizziness images. On the other hand, I have never found a competent observer who affirmed the existence of images of hunger and thirst. I believe, too, that organic images are always rather the exception than the rule; and I believe that no single mind has any large variety of them. There is a great discrepancy between my introspections and those of other trained observers (Lay, *e. g.*, finds only 1.1 per cent. of organic imagery in his own case), on the one hand, and the mass-results of questionnaires, on the other. Thus, of 116 Vassar students examined by French, 80 (or 69 per cent.) 'report that they can call up organic sensations in general, though many of them are unable to recall some of those suggested. Several note that they can not recall any image of organic sensation unless at the time they are inclined to have that sensation.'¹ A statement of this kind is, I take it, practically worthless. The second sentence shows some power of introspection; but the 'several' students have evidently confused the renewal or reestablishment of an organic sensation with the appearance of its image. We have no warrant whatever for supposing that the remainder had advanced even thus far in introspection. It may quite well be the case that one and all of them have confused the weak or partial reinstatement of a certain sensation or sense complex with the occurrence of an organic image. The question asked is a question of very considerable introspective difficulty, and can not be settled by so rough a method. I regard this and similar statements in the literature as distinctly misleading; and it is largely for this reason that I venture to plead for more

¹ *Psych. Rev.*, IX., 46, 54.

refined and systematic work. I should like to know precisely what organic sensations can be imaged; whether those that can be imaged are recalled alone or only in total contexts; whether they can be recalled at will, or occur only 'of themselves,' involuntarily; whether and to what extent their images enter into the ordinary texture of consciousness in minds of a certain constitution; whether we all have the *Anlage* for organic imagery, and can evoke it by practice and attention; and so on. To problems of this kind the questionnaire method, as ordinarily applied, is not adequate.

E. B. TITCHENER.

CORNELL UNIVERSITY.

CASES OF DOUBLE CONSCIOUSNESS.

THE phenomenon of double consciousness is presented so rarely to the physician that every case offers certain points of interest. The two following cases have come under my observation within the past year:

CASE I. A healthy young man, a football player on one of the university teams, while playing a college match was thrown heavily and for a few moments lay unconscious on the field. Within two minutes, however, he got up and went on playing and during six minutes following he played well, he answered signals of the captain in a proper manner, although several of these signals involved complicated movements and he appeared to be in a normal state. He then suddenly became conscious that he was in a very nervous, trembling condition, and unable to play, and was led off the field in a state of great nervous excitability, and for several hours was prostrated.

When he came to himself, he had a recollection of the fall but he had no recollection whatever of the plays in which he had participated after the fall and which he had carried out with apparent consciousness and perfect accuracy. At the present time his memory extends up to the time of the fall and begins at the point where he felt the tremor and prostration, but he has absolutely no recollection of the six minutes subsequent to the fall during which, as already stated, he played a good game.

CASE II. A man twenty-four years of age, who had been for three months in a state of great mental anxiety, during which time he was decidedly overworked, suffered from an attack of the grip in March, 1903. On the 24th of March, just as he was recovering from this attack, he went to his office as usual in the morning and about noon left the office to do an errand. He remembers going out and crossing Broadway and having to jump suddenly out of the way of a car, the motorman shouting

'jump' as he did so. From this time for the subsequent week he has no recollection whatever of his actions and during this time he was lost to his family, who were correspondingly alarmed at his absence and took measures through the police to try and trace him. These measures, however, were futile and no trace was found of him until March 31, when a friend met him wandering about in Harlem and recognized him and took him home. On arriving at home he recognized his friends, complained of intense headache, seemed much depressed and very nervous, and said that he had recovered his memory at about ten o'clock in the morning, when he found himself on the elevated railroad between 104th and 116th Streets, much to his own surprise. He got off at his regular station, 125th Street, but did not appear to recognize the streets and was much relieved when his friend appeared and guided him to his house. He remained in his house for the following few days suffering much from headache, but gradually recovered, and when I saw him on the 9th of April was in his ordinary health. He had apparently no recollection whatever of any events between the 24th of March and the 31st of March.

On his return he presented a somewhat dishevelled appearance and was without money and had apparently had nothing to eat on that day, as he was quite famished.

On cross-questioning, it was found that he had a dim recollection as of a dream of having gone to a hotel down-town for the night and of having come once to Harlem with a view of finding his home, but being unable to do so. Subsequent investigation proved that he had been one night at this hotel, as he was registered there in his own name. He was seen once during the week by a policeman whom he knows down-town, but this man, though knowing of the alarm that had been sent out, did not think it worth while to speak to him or take him home, but told him of the fact later on when he was regularly attending to his business. What his movements were during this period of six days he has not been able to ascertain. He did not go to his office and he did not come to his house.

He was a man of good habits. There is no suspicion that he was making this an excuse for having gone on a spree, and nothing in his history points to any reason for such a sudden disappearance. He has been well ever since.

It seems probable that the sudden shock or fright of the danger of being run over by a car threw him into a state of second consciousness, from which he emerged spontaneously at the end of a week.

M. ALLEN STARR.

DISCUSSION.

THE LOGIC OF HISTORY.

THE most important criticism evoked by Professor Rickert's book, 'Die Grenzen der naturwissenschaftlichen Begriffsbildung,' is an article by Ferdinand Tönnies in the *Archiv für systematische Philosophie*,¹ in which he takes exception to the identification of natural science with conceptual science. Rickert, in his book, draws a sharp distinction between *Begriffswissenschaften*, i. e., sciences whose end is the discovery of *universals* or general laws, and sciences of the *individual* whose end is the description and interpretation of single and unique facts and processes. The latter alone are sciences of the real, since the reality is everywhere the individual (this is the same distinction as that made by Windelband under the names *nomothetic* and *ideographic sciences*).

Tönnies objects that it is an unwarranted limitation of the scope of sciences which deal with universals, to identify them solely with the natural sciences. This, he thinks, would shut history out of the category of science altogether. He says that Rickert seems concerned, above all things, to show that the *matter* of history excludes its treatment by the methods of natural science, and this is the ground of Rickert's denial of the value of psychology to the historian. Psychology deals with the *general* nature of mental processes. It can not explain the individual. And what the historian needs is insight into the unique processes of individual minds—a kind of divinatorial intuition of the individual. To this insight psychology will not help him. Tönnies replies that great historians actually do make use of the psychological theories of their own times, and that the imperfection of psychology is no argument against its value as a science auxiliary to history. As well object to the application of plant physiology in botany because the known laws of physiology do not suffice to explain every accidental variation of plant-life.

Tönnies holds that, besides the merely descriptive histories (chronicles, local histories, etc.), there is room for a more strictly scientific treatment of history in which the laws of historical development are traced and in which the individual is treated merely as the example of a law or universal principle. And this, of course, is the highest form of historical science. Tönnies says that the truth on which Rickert's greatly overdone antithesis between the two types of science is built up is simply the distinction between

¹ 'Zur Theorie der Geschichte,' Band VIII., pp. 1-38. Rickert replied in the same volume, pp. 137-163, under the title, 'Ueber die Aufgaben einer Logik der Geschichte.'

pure science, which always deals in universals, and *applied science*, i. e., the application of the universals of science to the actual world. Out of this simple distinction between pure theory and mere fact Rickert evolves a whole logic and theory of knowledge.

Rickert holds that history in its treatment of its individual and non-repeatable (*einmalig*) data selects and arranges its material under the guidance of *culture-values*, and that these are the sole objective and universal principles employed in history. Tönnies holds that there are other universal principles applicable to historical processes, e. g., the law that the individual will is controlled by the social will, the influence of the *general movements, tendencies* and *prevailing ideas* of a period on its individual leaders, etc. These principles constitute the elements of a general social theory applicable to all history. Tönnies concludes that Rickert's rigid separation of conceptual (or natural) and historical sciences is unwarranted.

In general reply to this criticism Rickert states that Tönnies and others have failed to understand his book, primarily because they have not grasped the problems of a logic of history, and he addresses himself to the statement of these problems. There are two principal problems: (1) What *value* as objective knowledge have the forms of thought used in this particular field? (2) What *ends* are *actually* sought by the science in question? The first problem belongs to the *criticism of knowledge*, the second to *methodology*. The latter question must be answered before the former can be considered at all.

Rickert points out that he does not deny the presence of historical elements in natural science, nor the application of conceptual universals in history. But the science of knowledge must consider distinctive *methods* in their purity and isolation. And the problem is not principally a question of difference in materials, but in *ends*. The *end* of *natural science* is to subsume the individual under the universal, to reduce fact to law. *The end of history is to understand and interpret reality in its singularity and individuality*. In both natural science and history a given material may be treated from the standpoint of evolution. But in natural science, e. g., in embryology, the particular case is treated simply as the exemplification of a general law, whereas in history, the science of the development of human *culture*, each period, phase and personality has a unique and individual reality and significance. The term 'historical' should always refer to an individual and unique (*einmalig*) process or event. A *historical* religion, e. g., is a singular and once-occurring religion in contrast to *natural* religion, which is assumed to be grounded in universal human nature. The contrast between the natural and the historical sciences is not, then, primarily one of

material, but of *method*. We might treat the development of the earth as a unique historical process. 'The logical opposition of method shows itself not in the material, but in the concepts employed,' and these, in turn, depend on the ends sought.

The social life of man may properly be treated with explicit regard to the universal. The particular fact may be brought under a system of laws. This is the procedure of sociology which is, like psychology, a natural science. The individual is treated solely as the exemplification of a general law. But the unique and once-occurring development of human culture can not be so treated. Hence when sociology attempts to be, as with Comte, a philosophy of history it becomes a 'logisches Unding.' The real historical connection (*Zusammenhang*) is always an *individual* process consisting of individual parts which are elements in an individual whole having culture-value. These wholes are historical groups (*e. g.*, the Italian humanists, etc.). Concepts may be formed of their common features. But these concepts are subordinate to the understanding of the group as a unique fact. The very fact that we *evaluate* historical events and processes points, of course, to an over-individual and objective system of values. But these have nothing to do with the abstract conceptual universals of natural science.

The naturalist, such as Tönnies, hypostatizes abstract laws and sets up a metaphysical realism of concepts. A theory of science (*Wissenschaftslehre*), free from metaphysical assumptions, holds that the real is always individual and that general 'movements,' historical 'tendencies,' etc., are real only in so far as they are constituted by individuals. A law or universal is a *means of cognition*, a *form of thought*, not an object of knowledge. And we must distinguish carefully between the general concept in natural science, for which the individual is a mere example, and the historical group concept which represents a single whole of related individuals.

This whole discussion serves to define more clearly the issue on a question that has not yet received the attention it merits at the hands of English and American students of philosophy. On the one hand, it is proposed to treat history scientifically by methods analogous to those of the natural sciences. Tönnies is essentially a naturalist. For him the ideal of all science is the reduction of the individual to the mere example of a universal or law. Behind this methodological attitude lurks a metaphysical theory, viz., the superior reality of the universal, the ultimateness of scientific law. Rickert, on the other hand, insists that historical science has aims and methods peculiar to itself. Behind his acute exposition lurks also, in spite of his disclaimer, a *metaphysical* assumption, viz., *the real is the individual*. And so Rickert emphasizes the uniqueness

of the cultural development of man as well as of every single historical process, and he views knowledge teleologically. This discussion in methodology brings us back to a fundamental problem of metaphysics—the relation of the individual and the universal. Rickert seems, on the whole, to be right in his account of the contrast in method between the natural sciences and the historical or humanistic sciences. But he does nothing to solve the dualism in our knowledge which this contrast creates. It may be true that the real is always individual. If so, we need to know what is the function and what constitutes the validity of the universals of science in relation to reality. Merely to make good the assertion that the real is the individual, one must give a clearer answer to this question than Rickert has done. On the other hand, there seems good ground for holding that there are conceptual universals or laws, valid for the social-historical world, although they are more remote and less easily discovered than in natural science. What is the significance of these universals in relation to the so-called general culture-values and to the individual real? Rickert has raised metaphysical problems which can not be laid simply by calling his opponents ‘conceptual realists.’ The unity of knowledge is a postulate of philosophical thinking, and this unity is left in question by the sharp antithesis of the natural and the historical sciences.

J. A. LEIGHTON.

HOBART COLLEGE.

THE LIMITATIONS OF MINOR LOGIC.

IN the last number of this journal, Mrs. Franklin says: “A recent writer in *Science* slips into a curious error in phraseology. He allows himself to speak of a ‘superabundance of physicians going hand in hand with a shortage of patients’ as being attributed to, etc. But the superabundance of physicians is the same thing as the shortage of patients,” etc. The editor of a journal disclaims responsibility for the opinions and doubtless also for the logic of its contributors. But in this case the responsibility appears to be thrown on the journal rather than on the contributor, who is not mentioned. We are all ready to confess that we are miserable sinners, but usually object to the imputation of any particular sin. I venture to suggest that Mrs. Franklin’s comments illustrate the limitations of minor logic rather than a lapse in logic on the part of the writer. He was discussing the statistics of medical students, and the conclusion of his sentence (omitted by Mrs. Franklin) was ‘must be attributed to a decrease in the number of illnesses, a decrease due to the application of modern methods of preventive medicine.’ The writer of course means that there has been an

increase in the number of physicians as compared with the total population, and that at the same time the number of illnesses, as compared with the total population, has decreased, largely owing to the increased number of physicians. These statements are by no means the same. It would scarcely be worth the while to make this explanation if it were not that it illustrates the fact that formal logic tends to ignore the complexity of thought—hence its comparative barrenness.

EDITOR OF SCIENCE.

REVIEWS AND ABSTRACTS OF LITERATURE.

The Nature of Goodness. GEORGE H. PALMER. Houghton, Mifflin & Co. 1903.

That a need exists for a good text-book in ethics has long been evident from the succession of introductions which have appeared of late years. Mackenzie's 'Manual' and Muirhead's 'Elements' have held their own pretty well, yet have not been felt to satisfy the need completely. Nor has Seth's 'Principles,' though marking an advance, quite realized the ideal. The Hegelian spirit seems to manifest itself in a tendency to over subtlety and refinement in details which is confusing to a beginner, and at the same time to a vagueness in the statement of first principles which often produces in the reader a sense of mystery and elevation, but by no means conduces to clearness of comprehension. The student is not impressed with the reality of the analysis—the principles discovered seem to be those of an experience other than his own—the whole discussion seems remote from life, and he retains a vague feeling that his study has not answered his legitimate expectations.

Apparently with a desire to meet these objections we have had two more recent works, one professedly an introduction, the other a more comprehensive treatise, those of Fite and Mezes. The latter of these, in its preliminary discussions of the nature of ethics and the characteristics of moral experience, is refreshingly real and concrete. One feels that he is face to face with life and engaged with its analysis. Yet the book as a whole lacks that unity of principle and treatment necessary to make it intelligible to a beginner. The materials are good but they appear to have mastered the builder. Dr. Fite's 'Study' makes interesting reading for the initiated or for those philosophically inclined and looking for a theory of the world as a whole, but for the uninitiated ethical student it is impossible. The work is not an introductory study of ethics, but an elaborate and interesting criticism of certain typical philosophic theories, with special reference to their social and moral significance. It is an introduction to theories rather than to the facts of the moral life.

If ethics is to maintain its self-respect in these days of the exact sciences it must adopt something of their method. It must cease to

be merely a struggle of contending theories and become a direct study of moral experience. The student should not be first bewildered and unsettled by a discussion of rival theories and only after having gained a vivid impression of the uncertainty of all things ethical, be finally made doubtfully happy by a neat reconciliation of the rivals and an assurance of their future harmony. His conclusion is apt to be that the whole matter is an artificial solution of an equally artificial puzzle. His first introduction should be to actual moral judgments—to those fundamental distinctions of right and wrong in conduct about which there is no dispute—and his further progress should be in the analysis of the necessary implications of those judgments until he is finally led to the discovery of the most fundamental principles as involved in his simplest judgments. There will be more or less difficulty in the exact formulation of these principles, but at least the student will feel that they have as firm a ground in experience as have the principles of knowledge. He will not lay down his book or leave his class-room with the belief that moral distinctions are speculative and uncertain while those of economics or psychology are certain and real.

When Professor Palmer published his series of popular lectures on the 'Field of Ethics' a short time ago, it was the hope of all admirers of his genius for lucid and well-balanced exposition that, now that he had broken silence on the subject of ethics, he would follow it up with a similar work presenting his own solution of the problems of that science. This he has now done in his 'Nature of Goodness,' in the preface to which he expresses the hope that the two volumes may together serve as an introduction to ethics. Of the earlier book it is not necessary now to speak at length. It was recognized at once as characterized by that simplicity and directness of statement which comes only from perfect mastery of a subject. In fact, its chief drawback as a text-book was perhaps the completeness of the exposition.

The present volume is an illustration of the same power in the author. It proposes to solve the first problem of ethics, that of the nature of goodness. A masterly analysis of the uses of the term brings out the twofold aspect of goodness, extrinsic, as means to an end beyond itself, and intrinsic, as an end in itself, and also the essential unity of these aspects, no object having value as means save as in itself good, and none having worth in itself save as also related to others, the general conception of goodness being thus that of organic wholeness or fulness of organization. Personal goodness, with which ethics is concerned, is the organic wholeness of those beings we call persons. The characteristics of persons are self-consciousness, self-direction, self-development and self-sacrifice. The goodness of persons consists in the realization of selves through conscious direction, development and sacrifice, in the attainment of the most complete life through the service of society. The goal of this development is not clearly defined and finite, but only vaguely apprehended and perhaps never completely attainable. Our lives are guided by the feeling of our special limitations and imperfections rather than by a positive knowledge of an absolute good. Progress is made by

patient improvement of the finite, by gradual development of our actual powers along lines laid down by past achievement. To this gradual development we can think no end. While it seems impossible to assert the infinity of the self, it seems equally impossible to think ourselves as finite. There is no provision in the moral life for checkage, each advance makes the next more possible and our greatest exertions involve no destruction of tissue or impairment of function comparable to that which takes place in physical life. The starting point of this development is in the unconsciousness of the natural life, its course is through the effort and struggle by which organization and self-control are won, and its end is in the unconscious certainty and accuracy of formed character. The absence of effort which is the crown of virtue is not a gift of nature but a product of will.

From the point of view of method there can be no question as to the value of this little book as an introduction to ethics. It has the same kind of value for this science as has the work of Professor James for psychology—it gives the student a vivid sense of the real character of the material considered and it has the additional value of clearness and consistency of principle. There is here no clash of opposing systems but a delightfully natural and positive unfolding of theory. Instead of the mass of subtle distinctions between desires for pleasure and the pleasures of desire by which hedonism is usually overthrown, we have but a paragraph in which the necessity for a criticism of desires is clearly shown. The standard of evolutionary ethics is as simply treated by an indication of the relativity and unfixity of both environment and organism.

Perhaps the most admirable feature of the work is the impressiveness with which the essential character of personality, its unfixity and self-determination, is presented. An appreciation of this is one of the most difficult results to obtain in the average student. They are so accustomed to the idea of objects or of fixed elements and natural law that they find it hard to conceive of a reality which never merely *is* as a completed and given thing, but is always in process of self-determination, for, in spite of the universal currency of the term evolution, the great majority of those who use it mean by it no more than change. Hence the whole significance of the self as more than a product of antecedent forces is lost.

So, too, the consequent impossibility of determining exactly and universally the features of the individual good is brought out naturally and with no suggestion of scepticism. Moral experience is shown as essentially a life, an art, as tentative and experimental, as a construction and testing of ideals. We are made to feel the absurdity of expecting an exact science of that which is contingent, of that which is not yet complete, and there is suggested the fundamental significance of moral faith. In the whole discussion we find just that clearness of distinction between science and life that we should expect from the author of the 'Field of Ethics.'

But a review devoid of criticism is perhaps justly open to suspicion, and hence a few questionable features might be pointed out in order to set the good in higher relief. These features are possibly due to the

necessary limitations of subject and space, but they are none the less serious defects in an introductory study of this character. The first is a consequence of the author's Greek point of view and method of approach. Starting as he does with the nature of goodness, he gives no adequate explicit consideration to the problem of obligation. That the conception of goodness involves that of obligation there is no doubt, but that this implicit element needs to be made explicit is equally true. The good appears to the modern mind as essentially an imperative, and one of the first and most natural questions of the inquirer is as to its authority. Indeed, one might very well insist with Kant that the starting point for ethics should be the imperative of duty and that the conception of good should be the result of its analysis, but, even if we start from this other aspect, the nature of obligation should be adequately discussed. But, further than this, there seems to be a certain ambiguity in expression concerning the moral motive which might readily be interpreted in a sense directly subversive of the author's position. Is there not a substitution of the observer's point of view, and have we not as it stands a clear description of the essence of immoral action, when the author says, 'Intelligent, purposeful moral conduct is everywhere shaped by the hope of improving the condition of him who acts'? Certainly the self is involved in all rational action, but just as certainly the moral man, save when he is immediately concerned with his own self culture, does not make the betterment of himself the explicit purpose of his action. He may desire water for the satisfaction of his physical need, but he does not labor for the welfare of the community in order that his self may be enlarged or his powers of self sacrifice developed. It is because of ambiguities of this rather disastrous character that it seems preferable to substitute for the usual Hegelian formula of self-realization that of the realization of selves.

These minor points, however, due, as they probably are, to limitations of space, can not detract from the essential value of the book as the best introduction we have to the study of morality.

NORMAN WILDE.

UNIVERSITY OF MINNESOTA.

Binocular Vision and the Problem of Knowledge. JAMES H. HYSLOP.
American Journal of Psychology, July-October, 1903, pp. 42-59.

This is Dr. Hyslop's contribution to the 'Commemorative Number.' As the title indicates, there is a union here of the writer's speculative and experimental interests. To the reviewer this union seems to have been accomplished with questionable results. But that may be a matter of opinion. The essential question in the writer's mind appears to have been this: Do the phenomena of binocular vision furnish any evidence in support of the claim that the mind transcends its sense experience? Still more explicitly stated, the question may read: Does the perception of solidity exhibit a case where we "see what is not in the 'impression'?"

To the reviewer, the main interest of the article comes from the fact that these two ways of stating the problem are regarded as identical. If 'impression' were used consistently in the Humian sense, no difficulty would be felt. But by 'impression' the writer means here nothing else than the *retinal image*. The question is then, again, whether perception may 'transcend' the retinal image, or, in general terms, 'the states and affections of the sensorium.' Dr. Hyslop reaches an affirmative conclusion for the reason, briefly, that the retinal images have no tri-dimensionality while the object of perception has.

Now, personally, I can not see any force in this line of argument. I know it is customary for those who examine the theory of perceptive knowledge to arrange in order the object, the sense-impression and the conscious state, and then speculate upon the relations subsisting between the members of the series. And there is clearly no harm in doing this, provided one keeps constantly aware of what one is doing. The evil arises, it seems to me, when the assumption is made that the mind somehow operates with the materials that lie in the sense-impression. To maintain that, in the case in hand, perception goes beyond sense experience, is to imply that the disparate retinal images are somehow the sense material out of which the solid object of perception is created. This seems absurd. The mind might as well make use of the object itself. Indeed, to unsophisticated thought it would seem that, if the mind were to operate with anything in the 'sensorium,' it would be with the ultimate excitations in the cortex rather than with the affections of the sense-organ. Those are 'nearer' to the mind.

To stop at the sense-impression and to examine the likeness or difference between it and the perception is manifestly unfair to the real problem and unfair to the actual fashion in which the psychophysical relations present themselves. In the case in point, then, the question is not whether the retinal image has a solidity which is present in the perceived object, but rather whether the cortical excitation has a solidity, *or any other feature whatever*, which resembles the perceived object. Put in this way the question seems less deceptive, and it becomes clear, I think, that we should seek, not for likenesses, but for correspondences between the mental state and the 'sensorium.' And certainly there is just as much in the cortical excitation to represent solidity as there is to represent two-dimensionality, or color, or size.

But has the real question of knowledge been touched at all by this discussion? To say that perception transcends the visual image, or even the upheaval in the occipital lobes, is as comprehensible as to say that the branches of a tree transcend the wind that blows through them. The question whether perception makes additions to sense-experience—actually conscious sense-experience—has not once been touched upon.

Now, I presume that I have misunderstood Dr. Hyslop altogether. But his appeal to the phenomena of 'upright vision' makes me think that I have not. Here, Dr. Hyslop says, is a distinct case where the percept does not reproduce the relations displayed by the retinal image, but has a form natively its own undetermined by the sense-impression. But

has this really any meaning? Has it not been clear since 1897 that the problem of upright vision is not a visual problem at all?

A. H. PIERCE.

SMITH COLLEGE.

Appreciations of Herbert Spencer.

In *The Nation* of December 10, 1903, Professor William James gives an appreciation of Mr. Spencer that is admirable for its justice and breadth of view. His points are briefly these. 'Few are entitled to a higher mark than Mr. Spencer on the score of positive and systematic form,' for 'who, since he wrote, is not vividly able to conceive' of the world evolving from a primitive fire-mist, of life "as a set of ever-changing ways of meeting the 'environment,'" etc.? Again, Mr. Spencer was the prophet of evolution and possessed both the "profundity and the genuine 'spirit of prophecy.'" Further, though he had a "matchless knowledge of certain sets of facts, one may hear it plausibly argued that Spencer is not a 'widely informed' man in the vulgar acceptance of the term." In short, facts that helped his purpose were never forgotten, the others seemed unnoticed.

His 'attitude toward religion is slightly paradoxical.' 'To the ultimate mysteriousness of things,' 'few men have paid more sincere explicit respect.' But this is confined almost to one chapter, and 'then dismissed with an affectionate good-by while all the particular mysteries that later present themselves are quickly explained away.'

Another seeming incoherence is given. In Mr. Spencer's 'heroic defense of individualism against socialism' he seems 'to have started from two independent facts,' to have been 'faithful to two ideals'—'the old English ideal of individual liberty' and 'the theory of universal evolution,' where 'the fate of the individual fact (or unit) is swallowed up in that of the aggregate whole.' But ought we not to add to the statement of Professor James, that here in Spencer's social theory a deeper conflict of principles comes to the surface? It is the old story, the mechanical-atomic cosmology and its opponent, the dynamic. In the former, the unit is the sport of external forces; in the latter, the monad determines its own life uninfluenced from without. This is the problem whose solution must determine the fate of Spencer's theory of evolution. If atomism be true or be, at least, an essential part in truth's ultimate synthesis, then his theory may remain secure. If the dynamic cosmology be the whole truth, then his theory is impossible. But if the final synthesis reconciles, as we believe it will, the mechanical and the dynamic theories, then the contradiction found here in Spencer's social teaching as well as the pro-founder opposition offered to his doctrine of evolution may both be removed.

Finally Professor James tells us that the 'ethical and political part of Mr. Spencer's writings seems the most impressive and likely to endure,' and that the 'Principles of Biology, of Psychology, and of Sociology' (though the last 'has probably a longer lease of life') will not remain as

well known to the reading world as the 'First Principles.' But all this is as it should be, not 'his infallibility in details,' but 'the bravery of his attempt' to seek truth as a whole, 'the original Greek ideal of philosophy,' and his life devoted to the service of mankind and true to its ideal, these are the things by which Spencer can afford to be judged.

The appreciation of Mr. Spencer by Professor Franklin H. Giddings, in *The Independent* for December 17, 1903, is especially welcome, because it comes from one who owes so much himself to Spencer's work and to his power of inspiring. Professor Giddings tells us that 'when all destructive criticisms have been made, this astonishing fact remains, that it is impossible to-day for the specialist in physics, in biology, in psychology, in sociology, or in ethics to offer any new hypothesis or constructive doctrine without directly or indirectly defining its relation to the philosophy of Herbert Spencer. It is this fact that justifies the comparison of Spencer to Aristotle. For in the whole history of human thought, these two men alone have so presented and interpreted the knowledge of their time that all other thinkers must of necessity take a position of antagonism to these masters or of agreement with them.' But we should be disposed to amend this statement of Professor Giddings, at least in part. Is not Spencer's contribution to metaphysics too limited and has not his theory of evolution rigidly confined his other contributions within too narrow limits to bring him in contact with all the chief thoughts of his time? We believe that there are even broad doctrines, it is surely true in philosophy, in discussing which Spencer's name need not be mentioned.

Our critic proceeds justly to show how preeminently original Spencer was when judged by the advance his doctrines made over positions actually held at the time of their formulation. But so short is human memory and so marvelous was Mr. Spencer's constructive power and gift of intelligent exposition 'that since 1880 all men have imagined that mankind has always thought in terms of evolution, forgetting to whom they owe their enlightenment.'

The most unfair criticism of Mr. Spencer is the assertion that specialists regard him as a great contributor in every other science than their own. As for sociology, Professor Giddings, 'expressing his own individual opinion,' does not hesitate to say that 'Mr. Spencer should be regarded as the true founder of scientific sociology, and as its greatest constructive thinker.' Of the many reasons for this judgment our critic gives three: (1) Spencer saw that 'the evolutionary process in society, as in plant and animal life, takes the form of a continuing adaptation of organism to environment, and that in human history the essential phase of the adaptation is a molding of human character to the relatively permanent circumstances of collective life.' A second reason 'is found in the insight with which he detected the dominant causes of social character.' The third reason, often cited as an incoherence, is Spencer's extreme individualism. 'Throughout his system he distinguishes between simple and compound evolution.' 'In the latter evolution is hindered and is complicated by differentiation.' The highest types of individual life are not possible where all else is sacrificed to integration,

but only where there is a sufficient integration 'to insure cooperation leaving the utmost freedom' for individual personal development. But does Professor Giddings remove all the difficulty of the adverse critic? It may be that he does as far as sociology's problem of the individual is concerned, but not so when we come to the ethical and metaphysical problem, to which sooner or later we must come.

Mr. Hudson gives a brief, good and authoritative sketch of Mr. Spencer's life and character in the same issue of *The Independent*, almost all of which, of course, may be found more fully stated in his book 'Introduction to the Philosophy of Herbert Spencer.'

WALTER T. MARVIN.

WESTERN RESERVE UNIVERSITY.

JOURNALS AND NEW BOOKS.

AMERICAN JOURNAL OF PSYCHOLOGY. July-October, 1903. Vol. XIV., No. 3-4. Commemorative Number, dedicated to President G. Stanley Hall by colleagues and pupils on the twenty-fifth anniversary of his doctorate. *Contribution à la psychologie du rêve* (pp. 7-23): H. BEAUNIS. - Results of a life-long study of the author's own dreams: content and causation of his dreams; changes with age. *Deception and Reality* (pp. 24-41): A. KIRSCHMANN. - All data of consciousness are real; unreality results from interpretation and depends on a willingness to lie. *Binocular Vision and the Problem of Knowledge* (pp. 42-59): J. H. HYSLOP. - The perception of depth in binocular vision is native, and yet transcends the actual data of the retinal images. *A Critique of 'Fusion'* (pp. 60-72): I. M. BENTLEY. - Fusion depends partly on the purely sensory interrelationship of elements and partly on the unifying effect of attention. *The Genetic Function of Movement and Organic Sensations for Social Consciousness* (pp. 73-78): M. F. WASHBURN. - Social consciousness arises from social instincts, by the development of 'free ideas.' Ejected ideas are distinguished from memorial by the presence of different instinctive movements. *The Status of the Subconscious* (pp. 79-89): J. JASTROW. - There is abundant evidence of the existence of subconscious processes, but not of their organization into a separate personality, nor of any impassible barrier between them and consciousness. *An attempt at Analysis of the Neurotic Constitution* (pp. 90-103): A. MEYER. - A plea for more careful study of types of the mentally unstable, in place of simply calling them all 'degenerates.' Several types are described. *The Psychology of Football* (pp. 104-117): G. T. W. PATRICK. - The great interest in games of football can only be explained on anthropological grounds, viz., as an instance of the pleasure in returning to primitive conditions of life. *Retroactive Amnesia: Illustrative Cases and a Tentative Explanation* (pp. 118-132): W. H. BURNHAM. - A blow on the head may abolish memory of events just before the shock, perhaps because time is necessary to ingrain an experience in the brain, and this ingraining process is checked by the shock. *The State of Death: an Instance of*

Internal Adaptation (pp. 133-145): J. H. LEUBA. - The mystical state of death to the world and to desire can not result from adaptation to external conditions. *Primitive Taste-Words* (pp. 146-153): A. F. CHAMBERLAIN. - A study of the taste-words of Algonkian peoples. *On Time Judgment* (pp. 154-174): B. EDGELL. - Short filled periods of time are over-estimated, longer ones under-estimated. The interpolation method shows Weber's law not to hold. This invalidates Ebbinghaus's revised basis for Fechner's law. *Class Experiments and Demonstration Apparatus* (pp. 175-191): E. B. TITCHENER. - Lecture demonstrations on the senses. *Experimental Studies in the Psychology of Music* (pp. 192-214): M. MEYER. - (1) To end satisfactorily, a melody may either descend or come to a 'tonic.' (2) Large ascending intervals are preferred slightly enlarged; but the minor third and second are preferred diminished. (3) Quartertone music constructed according to the general laws of European music becomes pleasing on familiarity; all music has the same fundamental laws. *Ein Beitrag zur experimentellen Aesthetik* (pp. 215-231): O. KUELPE. - Comparative introspective study of the factors in esthetic appreciation. Significance, congruity, recognition, association were prominent factors. Lipps's 'sympathy' was not noted. *A Study of the Accuracy of the Present Methods of Testing Fatigue* (pp. 232-245): A. C. ELLIS AND M. M. SHIPE. - Various tests commonly used for mental fatigue were found to disagree in their results, and on the whole to show no fatigue during a day's work. Therefore, they are unreliable; no adequate test of mental fatigue has been found. *A New Type of Ergograph, with Discussion of Ergographic Experimentation* (pp. 246-276): J. A. BERGSTRÖM. - An instrument capable of use with several separate muscles, with weight or strong or weak spring. *Attention Waves as a Means of Studying Fatigue* (pp. 277-288): W. B. PILLSBURY. - Diurnal variations in the attention wave. Some subjects show increased and some decreased efficiency towards evening. *Studies in Pitch Discrimination* (pp. 289-309): G. M. WHIPPLE. - A subject having memory for absolute pitch had no exceptional discrimination for pitch. A very unmusical person was not definitely subnormal in pitch discrimination under the simplest conditions. The pitch of a chord can not be remembered as well as that of a clang or a melody. *Statistics of American Psychologists* (pp. 310-328): J. MCK. CATTELL. - The psychologists were ranked independently by ten competent judges; the average results with probable error are given. The accuracy of this sort of judgment is studied. Academic origin of the psychologists. *A Study of the Conductivity of the Nervous System* (pp. 329-350): Y. MOTORA. - Several nervous phenomena can be imitated by a water-wave in an elastic tube; suggestion that the 'nerve impulse' may be such a wave. *The Relation of Motor Power to Intelligence* (pp. 351-367): T. L. BOLTON. - Eight- and nine-year-old children of the well-to-do are superior in motor speed and steadiness to poor children of the same age, and gain more from eight to nine. *Are Chromæsthesias Variable?* (pp. 368-382): F. B. DRESSLAR. - Tests of one subject showed, during eight years, few changes in color associations with names and letters. *On the Guessing of Numbers* (pp. 383-401): E. C. SAN-

- FORD. — Number preferences as shown in a guessing contest; such preferences vary with conditions. *A Quarter Century of Psychology in America: 1878-1903* (pp. 402-416): E. F. BUCHNER. — Outlines the transformation of American psychology that began twenty-five years ago, and the changes since. *Bibliography of the Published Writings of President G. Stanley Hall, 196 titles* (pp. 417-430): L. N. WILSON.
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NOTES AND NEWS.

THE members of the American Philosophical Association, by its officers, desire to call the attention of all teachers of philosophy to the fact that next February 12th is the centenary of the death of Immanuel Kant. They respectfully suggest that such memorial notice should be taken of this fact as in each case seems practicable. It is hoped that a more formal celebration of the illustrious services of this great thinker may be arranged for at the next meeting of the association.

GEORGE TRUMBULL LADD, *President*.

H. NORMAN GARDINER, *Secretary*.

PROFESSOR VAIHINGER has issued a call to the friends of the Kantian philosophy to join in the formation of a 'Kantgesellschaft' and the establishment of a 'Kanstiftung' in commemoration of the centenary of the death of the philosopher. It is proposed in this way to make good the deficit of from 500 to 600 marks, which has confronted the editors of the *Kantstudien* during recent years. Subscriptions may be sent to the American editor, Professor J. E. Creighton, Cornell University, Ithaca, N. Y.

MR. SHYAMAJI KRISHNAVARMA has offered to endow with £1,000 a lectureship at Oxford University in honor of Herbert Spencer, similar to the Romanes lectureship.

THE Munich Academy of Sciences has received a bequest from the late A. Samson, amounting to about \$125,000, to encourage the scientific study of ethics.

MR. KARL PEARSON, F.R.S., professor of applied mathematics, University College, London, known to students of philosophy by his 'Grammar of Science' and the application of exact methods to biological problems, has been elected an honorary fellow of King's College, Cambridge.

AT Oxford University Mr. Thomas Case, Waynflete professor of moral philosophy and metaphysics, has been elected an honorary fellow of Corpus Christi College; and Mr. Reinhold F. A. Hoernlé, B.A., Baliol College, has been elected to the John Locke scholarship in mental philosophy.

PROFESSOR DAVID IRONS, associate professor of philosophy, who has been absent during this semester on account of illness, will return to Bryn Mawr for the second semester and resume his lectures, which have been given during his absence by Dr. George S. Painter.

DR. EDWARD L. THORNDIKE has been promoted from an adjunct professorship to a professorship of educational psychology at Teachers College, Columbia University.

J. H. BAIR, PH.D., now research assistant for the Carnegie Institution working in the psychological laboratory, Columbia University, has been appointed professor of psychology and education in the University of Colorado.

MR. T. W. ARNOLD, professor of philosophy in the Government College, Lahore, and dean of the Faculty of Oriental Studies of the Punjab University, has been selected for the post of assistant librarian at the India Office.

THE JOURNAL OF PHILOSOPHY

PSYCHOLOGY AND SCIENTIFIC METHODS

NOTES UPON LOGICAL TOPICS

I. A CLASSIFICATION OF CONTEMPORARY TENDENCIES¹

IT is an interesting example of the irony of history that it was Kant who remarked, about a century and a quarter ago, that since Aristotle logical theory has neither lost nor gained an inch—that it appeared complete and settled. To-day the greatest difficulty students of logic have to contend with is the variety of independent and specialized points of view, a variety so great that it is almost impossible for any one person to be at home in all of them, independently of the diversity of opinion found in any one of them. A rough attempt to catalogue these various points of view and tendencies, even when undertaken by one quite ignorant in some of the fields, may be of use at least in defining some problems which are pressing in the further development of logic. Accordingly, a rough scheduling of tendencies follows.

1. *Formal Logic*.—The logic of scholastic tradition. It was, of course, formal logic which Kant, wrongly ascribing to Aristotle, regarded as finished and settled. But Kant's very insistence upon the purely formal character of thinking as such—his insistence that pure logic has nothing to do with any of the objects or contents of knowledge, being confined to analytic consistency with reference to identity and non-contradiction, was one of the chief forces in calling out by reaction other conceptions of logic.² The more rigorously one carries out the program of excluding from logical theory all reference to truth, belief and the evidential value of data, the more

¹I am glad to take advantage of the foundation of a publication of this type to record notes which are too informal to justify publication in more finished shape, and yet which, as notes of a student, may be of some use to other students of the same subject.

²See, for example, how Hamilton and Mansel, who followed Kant in applying logic to formal laws of thinking, evoked the reaction of Mill on the one side, and of T. H. Green on the other. Mill, 'An Examination of Sir William Hamilton's Philosophy,' 1865, and T. H. Green, 'Works,' Vol. II., 'Logic of the Formal Logicians.' (Lectures delivered in 1874-5.)

apparent the emptiness of such logic becomes, and the more the mind seeks for some other conception of thought to serve as a basis for logic of another type.

2. *Empirical Logic*.—Hence it was inevitable that when the rationalistic school went to seed in its doctrine of a purely empty thinking process, empiricism strove to build up a constructive logic of 'experience' as a source and guarantee of practical and scientific truths. John Stuart Mill was, of course, explicit in teaching that true logic is concerned with adequacy of evidence and proof, with the validating and discrediting of belief—with, in a word, all the processes which have to do with the consideration of any truth which is not self-evident. Rarely has any piece of intellectual work met so fully the need which called it out, and imposed itself so overmasteringly upon its generation, as did the logic of Mill. The empiricist, since Mill, repeats by his actions, if not by his words, what Kant said of Aristotle, that logic is henceforth complete and settled.³

The tendency of current textbooks to incorporate within themselves both the formal and the empirical logics, as if they simply amicably divided the field between them, is a good illustration of the capacities of the human mind. The assumption that thought has a deductive and an inductive process, which work by different laws, and that the formal, syllogistic logic adequately describes the deductive function, while the empirical logic as adequately represents the inductive, furnishes as striking an instance as one could find of the catholic willingness of the human mind to accommodate itself even to diametrically opposite assumptions provided that will save the trouble of systematic, reconstructive thinking.

3. *Real Logic*.—I use this term not as assuming that this sort of logical theory is 'real,' while others are artificial, but as a phrase, in the absence of any commonly recognized designation, with which to refer to those tendencies which give thought itself a content, and which reach their limit in the assumption that truth itself is just the perfected content of thought. The irony of history, to which I alluded at the outset, is, of course, the fact that it was Kant's transcendental logic which brought to an end the settled and fixed condition he attributed to logic. His so-called transcendental logic was nothing more nor less than an attempt to show the positive part played by thought in the determination of any experience which is capable of having attributed to itself the distinctions of truth and falsity.

³ Nevertheless, the work of John Venn, 'Principles of Empirical or Inductive Logic,' London, 1889, is such an independent rendering of Mill as to be worthy of more attention than it receives in the current Teutophile philosophy.

Under this head come all who have been positively influenced by the Kantian theory of judgment as involving an objective synthesis, possible only through certain thought functions. It is a term, therefore, which has to be applied largely by way of contrast. It includes almost all those who do not believe in the purely formal notion of thought, and yet are unwilling to accept empiricism. It names certain tendencies rather than any very homogeneous or defined body of thought. To take some of the best known writers, the names of Bradley, Bosanquet, Lotze, Sigwart and Wundt would all appear here, much as they differ from one another.

These three captions refer to movements that are sufficiently well defined to be termed schools of logical thought. They represent, that is to say, intellectual standpoints which have become sufficiently conscious of themselves to get formulation, and to be aware of their incompatibilities with one another. The tendencies that I am about to schedule are rather just tendencies. They are forces at work rather than schools of doctrine. Consequently, they are not necessarily incompatible either with one another or in all respects with the three tendencies just mentioned.

4. Attempts to reform the traditional syllogistic and inductive logics so as to bring them into greater accord with 'common sense' and with the methods and results of scientific inquiry. Such attempts, in the main, start from the accepted terminology of logical theory and try to free it from those connotations which attach to it in virtue of either the scholastic or the empirical standpoints; and to show how, without accepting any particular philosophical standpoint, logical conceptions must be interpreted in order to meet the working logic of practical life, and of scientific investigation and verification. To my mind the best representative of this tendency is Professor Alfred Sidgwick, and as I hope to devote one of my later notes specially to his reformatory work, I shall say nothing more about it here.

5. *Mathematical Logic*.—Under this head two tendencies are to be noted. One is the disposition to interpret and to construct logic as mathematics, and the other to build up the system of mathematical science as itself the adequate representative of logic. Most systems of symbolic logic illustrate the former. By the latter I mean the work which has been done primarily by mathematicians as mathematicians under the conception that mathematical science is in no sense limited by the concept of quantity, but has to do with all reasoning which may be exhibited in necessary form or that deals with necessary conclusions. I am not enough of a mathematician to characterize this movement closely, but I am sure I am not far out of the way in referring to the work of Benj. Pierce, and of the recent

Italian school of Peano as typical examples. I suppose this strictly logical tendency has been much more influential in building up the hyperspace geometry and the modern theory of numbers than the layman recognizes. In our present condition of specialization it is somewhat difficult for one and the same person to be well posted on the more general and philosophical aspects of logical theory, and at the same time to be at home in the recent development of scientific mathematics. I am inclined to believe that a person who should be properly equipped on both sides, and who was also at home in recent psychology, could render the logic of reasoning a very great service. Professor Royce has already given us some tantalizing specimens of what is possible in this direction.⁴

Among those who are interested in logic from the mathematical side there seems to be a further division of tendency. One school seems explicitly or implicitly to hold by the traditional formal logic, and to be engaged in making it more rigorous by the use of symbols, thus carrying out the program of more strict formalism, eliminating ambiguities arising from context and putting the formulæ of logic into a more compact and sequential form.

But, on the other hand, Mr. C. S. Peirce (if I interpret him aright) believes that one of the chief advantages of the mathematical, or symbolic statement is that logic may transcend thereby the limitations of mere formalism and become a potent instrumentality in developing a system which has inherent reference to the pursuit of truth and the validation of belief.

6. *Psychological Logic*.—Without in any way prejudging in advance the question as to whether logic and psychology are independent disciplines which can be brought into contact with each other only at the risk of corruption to both, one may note the fact that there is a renaissance of interest in the psychology of the reflective processes. This psychological development is giving at once such a novel and such a significant interpretation of the nature of thought in general, and of its various phenomena in particular, that it is hard to see how it can continue without in time affecting somewhat profoundly the consideration of strictly logical problems. If, for example, psychologists should come to a pretty definite consensus that thinking is originally conditioned by inhibited and, therefore, postponed action, it would seem as if such a view could not fail to modify the details of logical theory. Professor James's identification of

⁴I refer especially to parts IV. and V. of the second chapter of his 'World and the Individual,' Second Series, and to his presidential address upon 'Recent Logical Inquiries,' *The Psychological Review*, Vol. IX., p. 105. I do not include his supplementary essay in the first volume of his 'World and the Individual,' because he has (unfortunately, it seems to me) given his interpretation an ontological rather than a logical turn.

abstraction with a selective function, taking place on the basis of interest, which runs through all psychical processes whatsoever, and his theory of the teleological nature of conception, if accepted in psychology, can hardly fail to carry with them some kind of moral for logic. And, to take an instance that is seemingly somewhat more remote from logic proper, his conception of the stream of consciousness as involving a rhythm of substantive and transitive sort, and of carrying with it necessarily a certain relationship between the more or less definite (or, what is the same thing, the more or less vague) must be either true or false in psychology—and if true in psychology must modify in some way or other the conception of thought that obtains in logic.

7. *Logic in Connection with Comparative and General Grammar.*—It goes without saying that logic in its beginnings, logic at the hands of Plato and Aristotle, went along with and was largely dependent upon an analysis of the sentential structures in which thought is embodied. Logic more than repaid what it borrowed from its analysis of language fixing the categories of grammar and language study for many centuries. The science of language had practically no independent existence, but was a mode of phrasing the recognized distinctions of classic logical theory. But, as every one knows, within the last hundred years the study of language has entered upon an independent development of its own, and has now practically shaken itself free from the incubus of its externally imposed categories, which in turn originated from a more superficial study of linguistic phenomena. The time has about come, I think, when logic may again borrow from the extensive and profound analysis of language in as significant and important a way as the logic of Aristotle borrowed from the narrow and obvious language data at command.

Up to the present those who have attempted to make the connections between general grammar and logic have, for the most part, been already committed to a certain psychology. I do not wish to be ungrateful to the services rendered by Steinthal and his followers, but it seems to me, nevertheless, true that their efforts have been very much compromised (and this is true also in some degree, I should say, of Wundt) by the attempt to fit the results of philology into the *cadres* of a preexistent psychology, the Herbartian. The situation will be more promising in the degree in which students of language, working freely with their own data, and using psychology only as a working tool, make their own logical renderings and translations. It would not be difficult to gather from modern grammarians of the comparative and historical schools, a large body of data of great significance for the logical theory of propositions and terms—that is, of judgment and ideas.

8. *Logic and Scientific Methods.*—Of course, the status of scientific method has always had reflex influence upon logic; but in the main this has taken effect in the past through the efforts of those who were already logicians in utilizing the methods of experimental science in connection with the building up of their own systems. Without ignoring the tremendous fluctuation that has come to logic from such endeavors, we may expect, I think, still more fertilization when scientific men undertake an independent statement of the logical bearings of their own modes of procedure. We clearly are entering upon this stage of development. It is necessary only to refer to such names as Poincaré, Boltzmann and Mach.

JOHN DEWEY.

THE UNIVERSITY OF CHICAGO.

THE NECESSITY FROM THE STANDPOINT OF SCIENTIFIC METHOD OF A RECONSTRUCTION OF THE IDEAS OF THE PSYCHICAL AND THE PHYSICAL

SCIENCE is the attempt to give a rational explanation of the universe. Its earliest systematic statement is that of the so-called physical sciences—astronomy, physics, chemistry—in which the world is interpreted in purely mechanical terms. Nature is a mechanism. The concepts with which science operates in this stage are matter and motion. The material units, atoms, which make up the universe, are in constant movement. There is an extended substance, and this substance is in process of universal change. Ultimately, reality consists simply of atoms and their movements. There may be all sorts of combinations of these atoms; they may stand in all sorts of relations by reason of their ceaseless change; but ultimately there is conceived to be a substance, called matter, lying back of the changes. Matter is the permanent core of reality which runs through the changes, which underlies the movements of the atoms and makes them possible. This is the philosophical postulate of the earliest scientific physics—the existence of matter in motion. Inasmuch as matter is made fundamental in the conception, and this matter is conceived as given in little bits or units called atoms, this may be called the static conception of the universe, the lump theory of reality. The view has been held by mechanical scientists and philosophers from the time of Democritus. And it must be said that great fundamental principles have been established from this standpoint, which more recent science has restated rather than overthrown.

But, with the progress of scientific inquiry, especially with the advance of experimental investigation, the fact of change, of motion, has become more and more prominent, while the conception of an abiding substance postulated as underlying the changes has receded from view. The existence of matter has not been disproved, but its utility as a concept in its old static form has vanished in the light of a new understanding of the nature of motion. In place of dead inert matter have been put the positive conceptions of energy and force. Motion was formerly regarded simply as the phenomenal manifestation of some real entity—matter—lying behind, or it was conceived as a force operating upon matter from without. Under the name of energy, motion is now regarded as itself the essence of reality, and the idea of brute, lump matter, drops away. In place of the static we get a dynamic theory of the nature of reality. *Substance c'est l'action*. What was formerly called the material object or thing is now regarded as simply the latent or potential as contrasted with the active or kinetic form of energy. Instead of speaking of the indestructibility and homogeneity of matter, science now speaks of the permanence of force and the interconvertibility of energy. An atom is a center of motions, a vortex ring, the focus of a system of forces, an equilibrium of opposing energies. This is the dynamic or energistic view quite generally held by philosophical physicists to-day.

But while this dynamic view is transforming physics, another group of sciences—the biological—is coming into prominence. Biology existed alongside of physics, of course, from the first. But the nineteenth century is the epoch of the great development of the sciences of life. The statements of physics and chemistry are not the whole story. Nature is not only a mechanism. It is an organism. The biological categories do not negate those of physical science. On the other hand, the tendency of biological science has been steadily opposed to vitalism with its doctrine of occult force. It makes the fullest use of chemical and physical laws in explaining organic phenomena. At the same time, it recognizes that the organism is not a mere machine, as that term is customarily used; it is a living machine.

Here, again, we see progress from a static to a dynamic conception of life. Early biology was content with a doctrine of special creation, of fixed species, of a special vital force. Morphology in the modern sense was unknown. But with the rise of the genetic and comparative methods in science, biology has come to see the essential unity and continuity of all organic processes. The concepts of heredity and transmission, of variability and selection, of development and evolution, emphasize the idea of growth, as physical

science has emphasized the idea of ceaseless change or motion. And here, as before, scientific thought does not rest until it generalizes the idea. Evolution becomes a universal law of nature. The universe is a vital, living whole. It is organic. There is a cosmic life and a cosmic evolution; the principle of continuity requires it.

At first the conception of growth was restricted to a certain sphere called the organic realm. But investigation showed that the vital is built upon the basis of the mineral world, that the organic actually assimilates and incorporates the inorganic, building it into its tissues. The difference between the inorganic and the organic seems to reduce simply to a difference in organization. The difference is not a difference in kind, but only in degree or complexity of organization. This is shown, indeed, by the fact that the biologist falls back upon the chemicophysical laws for the explanation of vital processes. From this point of view, therefore, the universe may rightly be called an organism, without departing from the biological definition of an organism as a self-perpetuating system or mechanism in which the constituent parts are related reciprocally as means and ends. The evidence tends increasingly to show that the universe is an organic, and not merely a mechanical, whole. If the chemicophysical categories are to be carried up throughout the world of life, the biological categories must be carried back to the interpretation of the world of matter and motion. Either the chemicophysical laws do not hold in the biological sphere—in which case there is a distinct vital force, and this contradicts the law of the conservation of energy—or they do hold in the biological sphere, in which case the idea of mechanism must be extended to cover the phenomena exhibited by organic life. And if the organic differs from the inorganic simply in degree of organization, then, on the same principle, it is not only legitimate, but distinctly illuminating, to carry back the biological categories to correct the inevitable abstractions made in the physical sciences.

This sufficiently meets the arguments of those who, like Professor Ostwald, would subordinate psychical phenomena to the idea of energy. The bare concept of energy, even when interpreted from the modern standpoint of dynamism in physics, is too poor to express the contents of the ideas of life and mind. Unquestionably, these latter concepts, as they are at present used, will have to be modified before they will form a continuous series with the concept of energy. The only point here urged is that the modification can not be all on the side of the biological and psychological categories. The concepts of biology and psychology must reconstitute the concepts of physical science as truly as the converse. Indeed, is not the modern concept of energy itself a good illustration of the ideali-

zation of a material category, of the spiritualization of matter? Psychical phenomena are not to be 'subordinated' (the term is Professor Ostwald's) to the concept of energy, but both concepts are to be reconstituted, each in terms of the other. Viewed in this light, one may even accept the words of the writer just mentioned, when he says: 'In all that we know of intellectual processes, there is nothing to hinder us from regarding them as a particular form of energetic activity.'¹ Indeed, this is just the present tendency of a certain school of psychology—to interpret all psychical phenomena functionally, *i. e.*, in terms of action, activity, energy, if you please.

As has just been intimated, another step remains to be taken beyond the physical and the biological standpoints. Besides the physical and the biological there are the psychological sciences. Besides matter and motion, besides the organism and life, there is consciousness and personality. The twentieth century bids fair to be the epoch of scientific psychology. The greatest theoretical problem of the science of the present day is as to what it is going to do with consciousness. On the one side, science is inclined to regard consciousness as simply one phase, and that a comparatively recent phase, of evolution. But is consciousness, in this case, to be interpreted solely in terms of the physicochemical, or even in terms of the biological, categories? If so, then these categories will have to be so revised as to do justice to the new facts.

On the other side, scientists, as well as metaphysicians, have not been slow to see that there is a sense in which the very existence of the external world, and the science of this world, are conditioned upon consciousness. An object, or a universe, that appears to no one, that is not present to some consciousness, that is not an object of knowledge by some intelligent being, would seem to be simply non-existent. There appears to be a sense in which the system of the universe has been built up in the scientific consciousness of the race, analogous to the way in which the world of space and time is built up in the consciousness of the child. From this point of view consciousness seems to condition the very possibility of science. How, then, can consciousness be simply a relatively late product of biological evolution? If time (including the historical development of science) has been built up in consciousness, how can consciousness be an evolution in time?

The solution of this apparent paradox lies in seeing that consciousness, taken apart from the organism which is conscious, is not an entity or thing or even a process; it is simply meaning or significance. Consciousness, taken in abstraction from body, is like what

¹ Ostwald, 'The Philosophical Meaning of Energy,' *International Quarterly*, VII., No. 2, June, 1903, p. 313.

you get when you attempt to conceive function abstractly, apart from the organ or structure which functions. Function, thus conceived, signifies no more than a sum of relations or meanings.² The enigma reduces, therefore, to a mere verbal fallacy. After abstracting the psychical, by definition, from the physical, there still cling to our psychological statements of the nature of consciousness traces of our conceptions of material objects. There is no actual consciousness apart from an organism. But in our thinking and speaking concerning consciousness we split apart these two aspects of the psychical and the physical for purposes of discussion. They are one, but in the very act of saying it we make them two. Any thinking or speaking is a polarizing into two aspects in thought of what is an undivided unity for action. This, of course, is a methodological, not an ontological dualism; hence is paradoxical only for him who forgets its methodological origin.

Psychology illustrates this split in scientific thinking. And psychology too often fails to remember that its abstractions are simply methodological devices or instruments and not an actual duality of existences. If this important point is kept in mind, the paradox of psychophysical parallelism disappears, and this apparent contradiction between time and consciousness is cleared up. Consciousness is in time, of course, when consciousness is regarded as it actually exists, as functioning of the nervous system. Time is in consciousness just as truly, however, when consciousness is regarded as the bare significance or meaning, in abstraction from its existential or physical basis, the body; for time, from this standpoint, is just one meaning among others. The solution of the antinomies which arise in the conflict of the different sciences is to be found in interpreting them always in terms of the methodological abstractions with which these sciences operate.

Here, then, as in the previous cases, the truth lies in generalizing, in universalizing, the laws of the new science. The conception of consciousness must be extended to the entire universe. The universe is a mechanism. It is an organism. The universe is also a conscious personality. Whether or not this is to become mere metaphysical verbiage will depend upon one's conception of consciousness and of personality.³ Certain it is that this is the only escape from the blind alley into which modern science has brought us in its doctrine of psychophysical parallelism, which insists at once that consciousness is the universal

² Cf. Bawden, 'The Functional Theory of Parallelism,' *Philos. Rev.*, May, 1903, 299-301, on this point.

³ See a forthcoming article in the *Philosophical Review* on the 'Meaning of the Psychical from the Standpoint of the Functional Psychology.'

accompaniment of the material body, yet has absolutely nothing to do with the continued existence of that body. This absurdity can only be escaped by revising our conceptions of consciousness and the self. Consciousness is not a thing, an entity, a force, any more than the function of an organ is a part of its structure. The function of an organ is the activity of that organ, its orderly and continuous operation with reference to an end or norm. Consciousness, or the psychical, in the same sense, is the functioning of the material or physical universe. Consciousness is not an entity, a thing; it is a function, a meaning. There is no more reason for making an entity out of consciousness than out of habit. We no longer speak of mind *and* its faculties, of functions and that which *has* the functions. The mind does not *have* functions; *it is* the functions. It is real only in its activity, or rather, its activity, its functioning, is its reality. Its various 'faculties'—sense-perception, memory, imagination, etc.—do not 'belong to' the mind; they *are* the mind. Each factor is the function of a common activity, a moment in the single process.

Now just as an organ may be relatively at rest or in active operation, so the universe, or any portion of it, such as the organism itself, may be in a relatively stable or in a relatively tensional state. An experience is psychical in so far as it is being made focal. Any experience is psychical in so far as it is treated as having been modified, as being modified, or as capable of being modified, in consciousness. That is, its psychical quality depends upon its relation to the process of tension or reconstruction. And the only sense in which there is any meaning in the concept of 'unconscious mental states' is that certain phases of experience are what they are because of their having been or their capacity for being thus mediated. Consciousness is not something which belongs exclusively to you or to me. It is simply our name for tension, for variation, for progress, of the whole system of reality. This is the general principle. Whether and how consciousness appears in any given focus of forces in tension is an empirical problem upon which physiological and comparative psychology are beginning to throw some light.

When tensional, reality bifurcates or polarizes into the psychical and the physical; this tension, this polarity, is consciousness. When reality is in relative stability or equilibrium, this distinction does not emerge; this is the relative unconsciousness of primary and secondary automatism. Consciousness is thus generalized for the whole of nature, and the physicochemical and the biological are in turn sublated by the psychological categories. From this point of view we may even agree with Mr. Maudsley when he says that 'in the order of nature mind is not something detached, proceeding not

from it, independent of its laws; . . . it is itself nature in process of becoming' ('Problems of Life and Mind,' p. 205).

H. HEATH BAWDEN.

VASSAR COLLEGE.

DISCUSSION

ORGANIC IMAGES

I AM glad to find myself in accord with most of what Professor Titchener says, especially as to the uselessness of the results gained by the questionnaire in the matter of organic images, and as to the need of more careful and systematic investigation in this subject. To his disbelief in the genuineness of the organic images of the 80 or 89 per cent. of the students examined by French, I can add my own in the results of Ribot,¹ who says that almost all of his 100 subjects recalled fatigue, sometimes almost to hallucination, and the same for nausea; and 75 recalled thirst and 45 hunger.

My own conviction is that organic images are as conceivable as any other kind, have been experienced by myself, and *may*, presumably, be experienced by others; that the visual or auditory are no more *necessary* than the organic, because there have been scientific men and members of the British Royal Academy who have had no mental images at all.² The problem as to the kinds and amounts of organic images revivable does not, indeed, seem to me to be different from that of any other kinds of images, even visual or auditory. I believe that all images, of whatever kind, are the emergence into consciousness of some disposition. This disposition in turn is the result or effect of impressions that have or have not been in consciousness at the time they were received. I do not know any adequate cause for their appearance in consciousness. I see no reason why, if the attention be turned to it, the image of any previously experienced sensation should not form some subsequent state of consciousness. To me the real problem is, what is the organic image?

It has seemed to me that the criterion of an image of any kind not organic is a feeling which I can not at present differentiate from a faint organic sensation—the organic sensation accompanying general bodily activity, such as pushing or tugging, of which feeling

¹ 'Recherche sur la memoire affective,' *Revue Philosophique*, October, 1894, and 'La Psychologie des Sentiments,' Ch. XI., § 2.

² Galton, 'Inquiries into Human Faculty.' Also compare James, 'Psychology,' II., 53, who says that he is a good draughtsman but an extremely poor visualizer.

the focus seems to be somewhere in the center of the trunk. A sensation of any kind seems to me to be followed by this internal feeling, faint for sensations of ordinary intensity, strong and locally more concentrated for strong sensations. In my own case it seems to be in attendance upon the faintest sensation and to be noticeably absent in everything that I call an image. It is my only criterion and I know that it has deceived me; but it is generally correct. This is in spite of the fact that the attention can be so exclusively devoted to an image of any sense department that the sensation itself, whether of the same sense department as the image or not, drops for a brief time entirely out of consciousness.

The distinction between organic sensations and images seems to me at the present writing to be clearest with sexual images. In my own case the image has the specific quality of the organic sensation, but it is clearly not the localized sensation. For the localized sensation is invariably accompanied by cutaneous sensations. Of course, I know no way to prove, even to myself, that this state of consciousness is an image and is not a real sensation, *e. g.*, of swelling glands, localized circulation and visceral muscle movements. This might very well be, and I can not say, because I have no mental pictures of the anatomy of the hypodiaphragmatic region; but I think it is not, because it does not seem to be so intimately a part of my body as the sensation does. It is a state of consciousness having the organic quality and the characteristically image-like timbre.

I should like to place on record a description of some of my own organic images. Just before writing these words I very vividly imagined the pain of hitting my finger with a hammer (I do not know that the sensation has occurred these ten years!); and of tearing my finger nail to the quick. In the following list of organic sensations which I take from Ebbinghaus,³ and which I have just now reread, I have italicized those that occur to me this evening with special clearness: hunger, satiety, thirst, *slaking*, *discomfort*, *nausea*, *fatigue*, *lassitude*, *rested feeling*, *oppression*, suffocation, buoyancy, *cork-cutting feeling*, sponge-tearing feeling, sharp knife feeling, *great height feeling*, restlessness, *relaxation*, depression, languor, mental lucidity, sleepiness, dullness; of which the cork-cutting feeling seems the clearest. It might be said that this is because I had with it auditory images of the little squeak that a steel knife makes in cutting a cork, and motor images of my hand holding the knife and cutting the end from a cork with a sawing motion; but the unpleasant quality came first! Images of certain other organic sensations are to me clearer than those of Ebbinghaus's

* 'Grundzüge der Psychologie,' I., p. 405.

list, *e. g.*, the organic sensation (thrill) somewhere near the diaphragm and the infinitesimal ache in the sole of the foot which are experienced a half a second or so after slipping on some moderately rough surface like a sanded floor, but without falling; and the painful thrill higher up in the thorax connected with the shrill, grating squeak of a slate pencil on a slate. This last is unaccompanied by visual images.

Hunger is the only organic sensation whose image I have at present any doubt about; and this is probably because I have not experienced that sensation for so long a time that I have quite forgotten what it feels like; and I have not an adequate motive to fast long enough to get the sensation. The skipping of a single meal is not enough.

On December 10, 1903, I paid close attention to my images for an aggregate of 22 minutes on three different occasions between 7:48 and 8:18 P.M., while smoking. In the first test I endeavored to confine myself to olfactory images and got 38 out of 63; in the second I tried touch and got 47 out of 57; in the third I tried motor images and got 10 out of 53. There were 1 pain image and 8 organic images in these 173. Seven of these were thermal images, two of them being of cold and the other five of heat. They were as follows: In the 'touch' series there occurred an image of the heat felt by my hand when lightly touching a coil of the steam-radiator. In the 'motor' series I imaged, second, the feeling caused by the spray of the surf one day last summer. This came first as a cutaneous image, but was followed by an image of its coolness. The third was an image of the cold shock of a shower bath after my swim in the surf; the fourth was another image of cold, followed immediately by an auditory image of the wind whistling through the bathing house; the fifth was the heat image of the hot and stuffy interior of another bathing-house; the sixth, an image of the warm water touching my feet, in a bay where I went to swim several times last summer; and the seventh was an image of an internal chilly sensation experienced by me at the end of a second swim taken on the same day. The pain image above referred to was the image of the aching of some part of my cheek caused by biting a very tart apple. In all these it is to be noted that I was not trying to get organic images; these experiences came spontaneously into consciousness. Of only one of them can I say that it was accompanied by an actual sensation.

I think it might be argued that images even of visual and auditory sensations are not 'essential as filling out the gaps in actual stimulation.' I think that any filling out that is necessary is accomplished by the *disposition*, which, as a separate event, is

not in consciousness. Thus I may hear the tone of a French horn, and know it for a French horn, and yet have in consciousness no visual *image* of the shape of this instrument, nor any auditory or articulatory image of the words 'French horn.' But the sound has a quality which I recognize as that of a French horn. That quality is in my own case an organic sensation or image⁴ which seems to me to have all the specificity to apply to, or to serve as a medium of recognition for, that particular class of auditory sensations.

Thus in the ordinary affairs of life, *i. e.*, in my own daily work in the school-room, I am not conscious of images, with the possible exception of the periods devoted to the study of English literature, where, in reading such poems as the 'Ancient Mariner,' the images suggested by the lines do appear, and, of course, if I stop to pay any attention to them, my efficiency as a teacher is impaired. My mental activity is entirely sensational. My thoughts are spoken. It would be undesirable to have any thoughts in consciousness that could not be spoken. Consciousness is entirely made up of the sights and sounds (made by myself and others) and other sensations. Any images there may be for me then are not images (if I may be pardoned a bull), but dispositions. When I write a note under these circumstances, I do it without conscious reflection and have, as a general rule, none of the auditory images that accompany the writing of a letter at my own desk at home. It happens that four days in the week I read the Bible to 200 boys. I remember that images have occurred to me, chiefly auditory, I believe, during the reading and that I have hesitated at those times. The attention, diverted for a fraction of a second, has arrested the reading aloud for about a second. Thus it seems to me that the imaging power, in many of its manifestations, is in reality awakened only by accident and in a comparatively small number of people, who are naturally introspective; that attention may be called to it; and I am sure that, in my own case, a ten years' practice in turning attention to the image has developed my abilities in this direction to a considerable extent. I fully believe that I *can* recall the image of any organic sensation that I have had frequently enough to be crystalized (so to speak) into a disposition, but that it requires a greater frequency for organic sensations to form that disposition than for other sensations.

WILFRID LAY.

NEW YORK CITY.

⁴I say organic sensations or images because I confess that these feelings of relation (the familiarity feel and others) are so slight in intensity that they may be called images. That they are *organic* sensations or images of some kind seems likely from the fact that frequently I am positively confident that I have recognized the sensation in question, and that I shall soon have the proof of that recognition, the name; and yet there is a short period of time when the feeling of confidence persists *without* the name.

REVIEWS AND ABSTRACTS OF LITERATURE

History of Philosophy. WILLIAM TURNER, S.T.D. New York, Ginn & Company, 1903. Pp. x + 674.

The first thing which strikes the attention in looking over Professor Turner's 'History of Philosophy' is the proportion of space allotted to scholasticism. With the patristic philosophy it occupies almost a third of the book: as much as oriental and pre-Christian philosophy combined, and almost as much as all modern philosophy. And his treatment of the scholastic philosophy is, on the whole, excellent. He follows the fourfold division of scholasticism adopted by González in his 'Historia de la Filosofía.' The first period is the 'Period of Beginnings,' including Erigena, Gerbert and the School of Auxerre. This is followed by the 'Period of Growth,' which he elsewhere characterizes as the age of dialectic madness. This period includes, among others, Abelard, whom Professor Turner judges severely. He discredits Abelard's statement regarding the doctrines of William of Champeaux, characterizes him as 'primarily a dialectician' and as one who 'appeared to prefer victory to truth.' He denies that Abelard was a conceptualist and in general treats him as essentially an iconoclast and a man without importance for the evolution of constructive philosophy.

The third period of scholasticism was the 'Period of Perfection,' the golden age of scholasticism, the epoch in which the characteristic 'effort on the part of the schoolmen to unify philosophy and theology, to discover and demonstrate the harmony of natural truth with truth of a supernatural order . . . finally crystallized in the principles in which St. Thomas enunciated his definition of the relation between reason and faith.' St. Thomas is, of course, the central figure in this period and his system is presented with great clearness and at greater length than that of any other philosopher, ancient or modern. He quite overshadows Duns Scotus, who does not receive the amount of attention that his intrinsic importance and historical influence would seem to warrant. He is characterized as brilliant and subtle, but is classed as a lesser light. Professor Turner refuses, however, to explain the differences between Scotus and Aquinas by the simple assumption of a 'wish on the part of Brother John to contradict what Brother Thomas had taught.' There was a 'difference in the mental temperaments' of the two men.

The fourth period of scholasticism was the 'Period of Decay.' The causes of this decay were, he finds, both internal and external. On the one hand the failure to cultivate the sciences resulted in a lack of materials for further development. The work of systematization had been done thoroughly and there was nothing left to do except to fall back upon disputes about the meaning of principles, to comment and to subtilize. Appeal to authority became predominant. On the other hand, the disturbed political conditions and the general relaxation in matters of religion and scholarship hastened the decline. This last

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period is regarded simply as a period of decay, not as a period of preparation for modern philosophy.

Professor Turner does not divide scholasticism into Platonic and Aristotelian periods. He regards it as eclectic in character. His method of treatment certainly gives greater unity and individuality to this great period of philosophy than does the traditional method. The value of much of the apparently futile logomachy of scholastic philosophy in developing a vocabulary for philosophy might have been brought out more clearly.

Professor Turner's treatment of ancient philosophy is clear and well arranged; it does not call for special comment. The discussion of modern philosophy is more open to criticism. 'Humanism,' 'The Italian Philosophy of Nature' and 'The Scientific Movement' are treated with great brevity. Modern philosophy as a whole is regarded, with Erdmann, as 'Protestantism in the sphere of the thinking spirit.' Philosophy has separated itself from theology. Since Descartes, one of its chief problems, he asserts, has been the solution of the antithesis between mind and matter; this and the anthropocentric character of modern philosophy are due to the mistakes of Descartes.

Hobbes is dismissed with a very brief treatment; great emphasis is put upon the influence of Descartes upon Locke on the ground that 'the cardinal idea of Cartesianism, namely, the antithesis between mind and matter, appears as a tacit assumption in Locke's inquiry.' The treatment of Spinoza is excellent, one of the best in the entire book. But the appearance of Leibniz with Berkeley under the caption 'The Idealistic School' is startling. What sort of idealism are we supposed to be dealing with? We are told that both tried to remove the antithesis between mind and matter by reducing matter to mind, though Leibniz is spoken of on page 525 as only 'partially idealistic,' and it surely has not been shown that those who regard Leibniz as a realist have no ground on which to stand. But we are told again that the true significance of the movement is shown in 'the attempt to restore the æsthetic and religious ideals which were threatened,' etc. If we are to understand by 'idealism' here an æsthetic or ethical idealism, Leibniz and Berkeley have no right to a monopoly of the term. Some scholastic definitions and distinctions are in order here.

The traditional expositions of Leibniz and Berkeley, in connection with the rationalistic and empirical movements respectively, are not superseded by this attempt to treat them primarily with reference to a metaphysical problem. The rationalistic character of continental philosophy is not given the prominence it usually receives, and emphasis is put upon Kant's reaction against Humian empiricism and scepticism at the expense of his similar reaction against dogmatic rationalism; not that the latter is entirely lost sight of, but it is not kept in the foreground.

The exposition of Kant is brief but clear. In the discussion of his æsthetic doctrine it should have been noted that the universality of the æsthetic judgment is *subjective*.

German philosophy is one example of the nationalization of philosophy

which, according to the author, succeeded the illumination. But in England nationalization certainly began with Hobbes, however little Locke may have derived directly from him and from Bacon and however much he may have been influenced by Descartes.

Philosophy since Kant is treated very briefly and with Professor Turner's customary clearness.

In addition to the men and schools usually included in histories of philosophy there is an interesting chapter on the Traditional School in France, including De Bonald and Lamennais, and a summary of Catholic philosophy in the nineteenth century.

There are no very important omissions. Easmus Darwin's blundering attempts at an evolutionary theory might have procured him mention among the early contributors to the modern development of that theory; Thomas Hooker should have a place among British moralists, and Herschel among those who contributed to the development of scientific method. One anachronism should be noted. On page 637, Hickok is spoken of as a Spencerian. He was in sympathy with evolution, but most of his works were published before Spencer had worked out his theory.

Professor Turner's work as a whole belongs to the class of those which trace the history of systems rather than the development of concepts. He recognizes the fact that the history of thought is an organic growth and not a dialectical process. He appreciates the influence of political and social conditions, but the details of this influence, the concrete application of the principle might be very much more complete. He would, doubtless, admit that the history of thought is a phase of the history of civilization, but its relation to the other phases of this development is merely suggested. A closer articulation of the development of thought with the development of other forms of human activity is much to be desired. Professor Turner, in his paragraphs on the historical position of every important thinker or school, shows the relation of system to system so clearly that we can only regret that he did not give us also the relation of systems to the thought of the theologians and that of unsystematic thinkers, the Humanist, the early scientist and the unphilosophical public, and their relation to the development of art and of industry. But an elementary history of philosophy is practically limited to one volume and Professor Turner does not attempt to include everything. His book will be a very useful text or book of reference, particularly for the period which he has treated most thoroughly.

ADAM LEROY JONES.

COLUMBIA UNIVERSITY.

Philosophisches Lesebuch. Herausgegeben von MAX DESSOIR und PAUL MENZER. Stuttgart, Ferdinand Enke, 1903.

This is a book of 258 rather large and closely printed pages, containing selections from seventeen different philosophers and comments upon them. About two thirds of the pages are devoted to the extracts, one third to the comments; but the latter are printed in somewhat smaller type.

The selections chosen are as follows.—Plato: the doctrine of ideas; the idea of the good and the doctrine of knowledge.—Aristotle: on syllogism; on knowledge; on the thought of thought.—Plotinus: on the One.—Thomas Aquinas: on universals.—Meister Eckhart: on love; how will compasses all things.—Francis Bacon: on induction; on idols.—Descartes: where one may doubt; on the nature of the human spirit.—Spinoza: God is the cause of all things; there are no ends in nature; the godly life.—Locke: there are no innate ideas.—Berkeley: on abstract ideas.—Hume: the origin of our ideas; the idea of necessary connection.—Kant: the characteristic of all metaphysical knowledge; is metaphysics possible? how is knowledge from pure reason possible? how is pure mathematics possible? transition from popular moral conceptions to philosophical.—Fichte: first introduction to the doctrine of knowledge.—Hegel: on the notion of the history of philosophy; what is reasonable is real.—Herbart: change as the object of a trilemma.—Schopenhauer: all living is suffering.

H. AUSTIN AIKINS.

WESTERN RESERVE UNIVERSITY.

The Distribution of Attention. J. P. HYLAN. *Psychological Review*, July and September, 1903, pp. 373-403 and 498-534.

Dr. Hylan's investigation covers two problems which have usually been treated separately, but are closely enough related to justify him in bringing them together under a single head. These are, first, how many things can we do at once and secondly, how many objects can be perceived in a single act of consciousness?

After a review of the literature of the first problem the writer concludes that we can not consider experiments in which any of the actions to be performed can become automatic with practice. After all results of that character are excluded there is found no evidence in the literature for the assumption that it is possible to distribute the attention. The writer's method of investigation was to ask his observers to count series of lines as they passed behind one, two, three, four or five openings in a screen. The results indicated that a slightly greater number of lines could be counted through two or three openings than through one. When four or five were observed at once there was always a decided loss. Since no attempt was made to exclude rhythm, it was concluded that the saving when present, was due to the ease with which the lines could be grouped. This interpretation is rendered the more plausible by the fact that in a similar experiment with series of tones of different pitch, when the rhythmic grouping was rigidly excluded, there was always a loss of time in counting the series simultaneously. There is, then, no evidence that it is possible to distribute the attention between groups of perceptions or actions.

The second part of the investigation is devoted to a solution of the old controversy as to the interpretation of the results of experiments on the extent of consciousness. Do we, as Wundt and many of his followers claim, actually receive four or five visual impression in a single act of the attention, or is the perception merely a successive interpreta-

tion of a memorial or sensory after-image—an interpretation that is completed some seconds after the exposure of the objects has ceased? Dr. Hylan brings strong evidence in favor of the second theory, that has been held by James, among others.

On the assumption that the perception is a successive counting of the objects retained in what Fechner calls the 'memorial after-image,' we can understand why fewer complex than simple objects can be perceived at a single exposure. It is merely that the recognition time for the complex is longer, as Cattell has shown, and that consequently fewer recognitions can be made in the time that elapses before the image fades. The explanation is made the more convincing by a series of experiments with letters on backgrounds of different shades of gray. It was found that where there was least contrast between background and letters fewest letters could be recognized. The images in this case would, of course, fade most quickly. More ambiguous evidence to the same effect is furnished by the fact that, as a rule, those subjects for whom the memorial after-image was longest could see the greatest number of objects at a single exposure.

The frequently stated fact that, with practice, sensations at first distinct tend to fuse into a single whole was confirmed in this investigation.

If we accept Dr. Hylan's conclusion that in all cases where several distinct objects are apparently seen at once or are seen with a very short exposure there is really a separate successive act of the attention for each object, we are apparently driven back to the Wolfian doctrine that the mind can perceive but one thing at a time. It can not be doubted that the evidence presented makes strongly for this interpretation. It must be added, however, that Dr. Messenger makes an equally strong case for the statement that when the group is small or very familiar there is an immediate association between the perception and the numeral without counting. And this interpretation is also in harmony with the results that Dr. Hylan obtained in a series of recognition reactions to disparate stimuli. In either case we have not simultaneous recognition of many objects, but either successive counting in a memorial after-image, or the recognition of the several elements as a single object with the numeral attached.

W. B. PILLSBURY.

UNIVERSITY OF MICHIGAN.

The Refutation of Idealism. G. E. MOORE. *Mind*, October, 1903, pp. 433-453.

Mr. G. E. Moore is among those who believe that there is too much dogmatic slumbering in the camp of the idealists. The latter are accustomed to assume that their 'spiritual' interpretation of the world is supported cumulatively by many arguments, whereas their whole case rests upon one crucial argument. This argument, which Mr. Moore proposes to refute to the total discomfiture of idealism, is summed up in the proposition, '*esse est percipi*.' The refutation of the argument is stated (1) dialectically and (2) analytically.

1. The above proposition is a tautology unless *percipi* adds something to *esse*. The important question, then, is that of the inseparability from *percipi* of *x*, or that in *esse* which exceeds *percipi*. But there is no self-evidence attaching to such a proposition, nor any ground for it, save in such a psychological interpretation of experience as permits the distinction of *x* from *percipi* to lapse again.

2. Such is the case with the idealist who deliberately reduces object of experience to content of experience. His contention is briefly as follows: One finds blue, *e. g.*, as a subject of discourse, in one's sensation of blue. But it is impossible to differentiate blue from the content of the sensation of blue. Hence blue as other than the quality or attribute of my sensation of blue has no meaning. The idealist regards the object of awareness as a part of the awareness, since he can not differentiate it therefrom. Mr. Moore contends that this confusion contradicts the meaning of awareness. To be aware is to be aware of something; that is, the awareness and the 'something' are two distinct factors of the situation. Every consciousness, if this term is to mean anything, must be regarded as superadded to its object. It can never, therefore, itself give evidence of its indispensableness to that object. Consciousness is a specific term and can not be regarded as coextensive in its connotation with the term being.

Apart from its prolixity and obscurity this article suffers from a more serious defect. The idealistic fallacy, the author remarks, 'is due to the fact that though philosophers have recognized that *something* distinct is meant by consciousness, they have never yet had a clear conception of *what* that something is.' 'My main object in this paragraph,' he adds, 'has been to try to make the reader *see* it; but I fear I shall have succeeded very ill.' And this estimate of his success is not too modest. The paragraph in question demonstrates that the sensation factor common to sensation of blue and sensation of yellow is separable from these objects, and that it signifies some 'unique relation' in which each stands. And there we are left.

But this deficiency does not invalidate the main contention of the article. It is difficult to see how the refutation of the definition of being in terms of consciousness can be regarded as other than successful. Subjective, though not Platonic, idealism rests upon this principle and can not survive it. There remains the realist's more serious task, the reinterpretation of that category of subjectivity whose ontological use he discredits.

RALPH BARTON PERRY.

HARVARD UNIVERSITY.

Ethics a Science. E. B. MCGILVARY. *Philosophical Review*, November 1903, pp. 629-648.

The writer states the difference between a science and an art; science is knowledge, while art is skill in production. An art is often called a science, and a science is often called an art. This mistake has been made in the case of logic, and it is made when ethics is defined as the art of correct conduct. Morality is the art in which various persons

are more or less proficient. Ethics is the science of the principles of an art.

He asks, Is ethics a descriptive science? The majority of writers, he says, have considered it not descriptive, but normative, while a few maintain that it is entirely descriptive. The author's position is that ethics as science, like all science, is descriptive of facts. Science is knowledge, it is indicative; it is not normative, not imperative. The only rules that a science lays down are the rules of its own procedure. The science of jurisprudence and the science of ethics are both alike in that they do not lay down laws, but merely set forth facts. Ethics describes the various types of morality and the results flowing severally from these types. To the ethical scientist practical moral questions may be of stupendous interest. As a man he may have his decided preferences for certain ethical principles and phenomena, but as a scientist he may be impartial. The task of ethics is entirely descriptive, it is an unimpassioned survey of all the accessible facts. Such description does not exclude scientific criticism. As to whether ethics is a theoretical or a practical science, it is maintained that every science is, as a science, theoretical; it is a matter of *seeing*, not of *doing*. The practicality of ethics is hard to estimate, but it is undoubtedly great. Its practical value consists largely in two ends it gains. First, it secures a progressive liberation of the mind from the bondage of moral prejudices, many of which are serious bars to progress in civilization. Not all types of morality are equally conducive to human welfare. This is the negative work of ethics. The second result brought about is positive. This consists in the emergence of new and better ideals, suggested by study of actual moral conditions.

The next question considers whether ethics shall be studied out of intellectual curiosity or for its utility. The answer is that there is no necessary incompatibility in the two motives, if there is no undue haste in observation and generalization. The ethicist must deal with moral phenomena without fear or favor. No reverence for moral laws, no devotion to moral ideals, must be allowed to interfere with an impartial handling of the data of ethics. It is extremely important that the methods of ethics should be scientific. But while scientific, ethics does not boast of mathematical precision, any more than economics does. The problem is too complex in both sciences.

In conclusion, the writer briefly glances at the claim often made that ethics is a branch of philosophy rather than a science. His position is that ethics, dealing with phenomena or facts of experience by inductive methods, is an empirical science.

WM. MILTON HESS.

YALE UNIVERSITY.

Art and Morality. JAMES LAING. *International Journal of Ethics*, October, 1903, pp. 55-66.

This article presents a condensed and rapid review of certain historical data which are regarded as supporting a belief in the interdependence

of art and morality. Theoretical discussion, accordingly, is avoided. The assumption being made that 'æsthetic and moral or social phenomena' are alike 'modes of spiritual manifestation,' the general theory is maintained that 'the art impulse . . . has been . . . a correct and accurate exponent of the moral movement of the period to which it belongs.'

Concrete illustrations of this doctrine are drawn in historical order. First, in the primitive society of Babylonia, India and Egypt, architecture especially reveals the attempted expression of 'the very deepest of moral ideas.' Then, the fate which befell Greek life and art, particularly that of Pericles' age, affords a conspicuous example of this relation. 'Belief in the ideal of the state . . . destroyed the moral possibilities of Greece,' and the restriction of spiritual expression to the 'sensuous perfectness of the human form . . . killed Athenian art.' Rome followed with her 'grossness of morals' and consequent 'prostitution of art.' Painting is the specific example drawn from mediæval life to reveal the reflection in art of certain ethical truths of Christianity. Furthermore, "in the decadence of the sixteenth century, the dawn of the idea of 'art for art' was precisely the point at which art and morals ceased to have an essential connection." Finally, music and poetry, in more modern times, support the theory. Goethe and Wordsworth illustrate it.

This theory of the interdependence of art and morality might be regarded even as necessary and inevitable. But the acknowledgment would fail to contribute to the solution of the essential questions: Should art teach morals? and, Has art an inherent tendency toward immorality? The first of these is a theoretical question to the solution of which historical data afford but a partial basis. The second question suggests that art might incidentally express the morality of an age and yet have an inherent tendency toward immorality. This is the deeper question, and historical data might profitably be employed in its solution.

ARTHUR H. R. FAIRCHILD.

YALE UNIVERSITY.

JOURNALS AND NEW BOOKS

THE PHILOSOPHICAL REVIEW. January, 1904. Vol. XIII, No. 1. *Aristotle's Posterior Analytics: I. Demonstration (pp. 1-15):* JOHN WATSON.—'The proper subject of the treatise is the method of science,' and "science is the knowledge of the 'cause,' or of that which 'can not be otherwise.'" The premises of a scientific or demonstrative syllogism are obtained by induction and must be (1) true, (2) primary or indemonstrable, (3) expressive of the ground or essence and hence not only 'universal' but *convertible*. Bound up with these conceptions is the distinctively Aristotelian doctrine that each science, while making use of *axioms* or principles common to all knowledge, has certain generic principles or *postulates*, peculiar to itself, and by which it is insulated

from other sciences. *The Reality of the Finite in Spinoza's System* (pp. 16-29): ELIZA RITCHIE. — The charge of *acosmism*, preferred against Spinoza by Hegel and others, is due to reading into the philosopher a dualistic conception of the relation of substance and modes which is utterly foreign to his meaning. The dependence of modes upon God implies that God is immanent in modes—infusing them with a reality that makes of them anything but negative or illusory appearances. In support of her interpretation Dr. Ritchie cites numerous passages all tending to show that *natura naturata*, or the totality of individuals, was conceived by Spinoza as an eternally real and necessary correlate of *natura naturans* or God. *Reality and Belief* (pp. 30-50): A. K. ROGERS. — "The fundamental basis of the sense of reality . . . lies in the relationship to some personal need or demand. The 'real' is that which enables us to satisfy our active impulses." We become conscious of our needs, however, only when they are checked. 'Facts' are 'values,' but they are values which have got themselves well established. Rationality is but the need for harmony and should not always be given preference, as a determinant of belief, over the other and more explicitly emotional demands of our nature. *Reviews of Books*: R. B. HALDANE, *The Pathway to Reality*, WILLIAM CALDWELL. J. M. BALDWIN, *Dictionary of Philosophy and Psychology*, W. A. HAMMOND. André Cresson, *La Morale de la raison théorique*, GEORGE S. PATTON. L. BUSSE, *Geist und Körper*, W. B. PILLSBURY. C. C. EVERETT, *The Psychological Basis of Religious Faith*, W. G. EVERETT. Summaries of Articles. Notices of New Books. Notes.

REVUE PHILOSOPHIQUE. No. 12, December, 1903. *Les Principes de la Morale Positiviste et la Conscience Contemporaine* (pp. 561-591): G. BELOT. — Comte's moral philosophy has not the weakness of his better known philosophy of science and should be studied as the cornerstone of his system. The will of humanity, not any objective entity called the good, determines what is right. Altruism is the means of discovering this will. *De la Sensation à l'Intelligence (Suite et fin., pp. 592-618)*: A. BINET. — Discussion of visual and verbal types. It is impossible to describe a pure touch-sensation without reconstructing it by our judging and comparing activity, through images. Cases of hyperesthesia confirm this. *Recherches Expérimentales: Sur l'Aperception des différences tactiles* (pp. 619-627): L. MARILLIER et DR. J. PHILIPPE. — There is a special discriminative power to discern differences of form, in cutaneous sensations; it is not a matter of intellectual interpretation. *Revue Générale: Les récents Dictionnaires de Philosophie* (pp. 628-648): A. LALANDE. Review of F. Kerchner's *Wörterbuch der Philosophischen Grundbegriffe* (4th ed., Leipzig, 1903); E. Goblot's *Le Vocabulaire philosophique* (Paris, 1901); Baldwin's *Dictionary of Philosophy and Psychology* (N. Y. and London, 1901-2); *Vocabulaire technique et critique* of the *Société française de philosophie*, Fascicules 3 and 4 published in the *Bulletin de la Société de Philosophie* (Paris, 1902-3). The last excels the others (ranged above in order of merit)

by adding to each article a 'Radical international' containing the different roots to be used as technical terms indicating the various senses of the general term discussed in the article. The author urges the adoption of these roots in philosophic terminology. *Analyses et Comptes Rendus* (pp. 549-66). I. *Psychology*: J. Maxwell, *Les Phénomènes Psychiques* (Paris, Alcan, 1903): G. L. DUPRAT. Grasset, *Hypnotisme et la Suggestion* (Paris, Doin, 1903): G. L. DUPRAT. Revel, *Les Mystiques devant la Science, on Essai sur le Mysticisme universel* (Paris, Bodin): A. GODFERNAUX. Hitchcock, *The Psychology of Expectation* (Yale University): C. Bos. Th. Lipps, *Einfühlung, innere Nachahmung und Organen-empfindungen* (Leipzig, Engelmann, 1903). II. *Sociology*: R. Worms, *Philosophie des Sciences Sociales* (Paris, 1903): J. DELVAILLE. M. Songo, *La Coscienza Criminosa* (Turin, Bocca, 1903): G. RICHARD. *Revue des Périodiques Etrangers*: American Journal of Psychology, J. PHILIPPE. New Books. Table des Matières du Tome LVI.

ZEITSCHRIFT FÜR PHILOSOPHIE UND PHILOSOPHISCHE KRITIK. Bd. 123, 1. *Das Grundgesetz des Lebens*: W. v. TSCHISCH. — Inorganic matter struggles for mere existence, as in all chemical processes; the living is never satiated, it fights for *increase*, and, therefore, for nourishment. Single cells are immortal save for outward circumstances. In complex organisms, to propagate the species the individuals must disorganize, die. Variation is due to the varying supply of nourishment. Struggle for increase marks also the psychical life. *Unter welchen Voraussetzungen hat sich bei Hegel die Wertschaetzung des Staates entwickelt, und wie ist dieses zu beurteilen*: W. FICKLER. — Hegel's 'intellectualistic' starting-point has led him to give a false importance to the state, that tends to make religion seem superfluous, art, a mere concept. His system makes individual man a mere point of intersection. But man is a personality; a fact that makes evil more than a mere negation, but at the same time gives a glimpse of a new, an 'Ueberwelt.' *Darstellung und Kritik von J. St. Mills Theorie der Inductiven Methode*: H. REICHEL. — Mill builds up his inductive method in the natural sciences, but maintains that the 'Geisteswissenschaften' attain certainty only by the same method. For Mill, induction is logic. Deduction and analogy are imperfect inductions. The criticism of Mill's theory is to follow. *Ein Neuer tragischer Held*: R. SOKOLOWSKY. — Ibsen's 'Emperor and Galilean' is made the text for a theory of tragic drama. In true tragedy the hero's purpose is in some measure the purpose of the universe. Disaster is the fruit of his imperfect perception of the world-harmony. Ibsen's real hero is 'pure humanity,' or more truly, the truth and beauty of the world-whole. His drama fails, however, to convince the audience that the good of the actual world is in question. *Religion und Entwicklung*: H. SIEBECK. — A summary is given of Eucken's 'Der Wahrheitsgehalt der Religion'; the next issue will give Professor Siebeck's contribution, which he believes will serve to complete and confirm the position taken by Eucken. *Parallelismus oder Wechselwirkung*: F. PAULSEN. — In answer to Busse's 'Geist u. Koerper, Seele u. Leib,' it is urged that idealism does *not* do away with

parallelism, but asserts coordination between the real, willing, feeling substance and the sense intuition. Interaction is untenable until it is necessary to call in the psychical to complete an otherwise imperfect physical chain of causes and effects (to be concluded).

ARCHIV FÜR SYSTEMATISCHE PHILOSOPHIE. November 15, IX., 4. *Ist die Annahme von Absolutem in der Anschauung und dem Denken möglich?* K. GEISSLER. — Neither a point nor zero is absolute; the former being a minimum; the latter, relative to the equality of a , in $a - a$. But zero, in so far as it is freed from the number series, and the zero-point, as a limit to extent, not itself extended, has an absolute character. The infinite is not absolute; but in common with the other terms named requires the conception of the absolute. As an intuition the absolute is possible, not demonstrable. *Die Religionsidee*: D. KOIGEN. — Religion is based on 'Allgefühl,' which is one of five possible solutions of the 'antinomies' of feeling. It means *intimacy* with the world, the condition which knowledge attains, climbing from the perception of mere *causality*, through perception of *continuity*. The highest individual perfection in religion is thus that each man should be his own priest and exhorter. *Die Französische Metaphysik der Gegenwart*: A. GUREWITSCH. — A summary of Bergson's position. It is an extension of Avenarius's principles. The starting-point of praxis, action, having been rejected for that of pure experience, it is shown that the continuity of mere happening (*Geschehen*) leads through 'concentration' to the contrasts of quality and quantity, freedom and necessity, etc.; mind and body are to be distinguished not as inner and outer, but in terms of past, present and future. *Gesetze des Geschehens*: B. WEISS. — The last of three articles attempting a classification of sciences, and a summary of the laws within each. The justification is here offered for the assertion that all such laws are fundamentally mechanical. Each science can be apprehended as a science of development. The position taken is an amendment of Spencer's theory.

ARCHIV FÜR GESCHICHTE DER PHILOSOPHIE. October, 1903. Bd. X., Heft 1. *Über die Aristotelische Definition der Tragödie* (pp. 1-27): C. HEBLER. — A discussion of the four terms, imitation, purification, pity and fear. Aristotle rightly describes the experience of the audience of a good tragedy. Fear through sympathy is to be distinguished from 'Mitfürcht.' *Zur Dämonologie Plutarchs von Chäronea* (pp. 28-51): DR. EISELE. — Plutarch's belief was derived from his study of the Delphic oracle rather than from Plato's teaching. It accorded in general with popular belief, but, in the interest of pure religion, he combated the belief in evil demons. The demon is a peculiar power residing in the enthusiastic soul which accompanies the individual like another ego. *Die Kategorien des Aristoteles* (pp. 52-59): R. WITTEN. — The source of the categories is purely dialectical, the content of isolated words arranged under genera. But, as A. naïvely unites words and things, the categories

serve as a bridge between dialectic and empiric. *Das Recht und seine Durchführung nach K. Chr. Planck* (pp. 60-93): O. L. UMFRIED. - Planck's hope in religious and moral consciousness is the view of a selfish and intellectualistic society. Germany at this time can be regenerated only through trades unions. And Germany is to be the center of reform in Europe. *Nietzsche und die Entstehung der sittlichen Vorstellung* (pp. 96-125): P. SCHWARTZKOPF. - A formal derivation of morality always neglects the significance of the individual. Nietzsche set the truth of life as the content, its soundness and power as the form of virtue. Future Ethics has but to correct his one-sidedness in representing life. *A report of the International Congress of the Historic Sciences*, held in Rome, April 2-9, 1903, covering the transactions of the section devoted to the history of philosophy. The papers were devoted to the period of the Renaissance. *A summary of the German literature on 'Die alte und die mittlere Stoa'*, published since 1897, with special reference to Barth's 'Die Stoa.'

Armstrong, A. C. *Transitional Eras in Thought*. New York: The Macmillan Co. 1904. xi + 347 p. 8vo. \$2.00.

Barth, Paul. *Die Stoa*. In Frommanns Klassiker der Philosophie. Stuttgart: Fr. Frommanns Verlag. 1903. 191 p. 8vo. 2.50 m.

Demery, Georges. *Mechanisme et Education des Mouvements*. Paris: Félix Alcan. 8vo. 9 fr.

Engel, Eduard. *Psychologie der Französischen Literatur*. Berlin: Leonhard Simion Nf. 1904. 243 p. 12mo. 3.50 m.

Hadley, Arthur Twining. *Freedom and Responsibility*. New York: Charles Scribner's Sons. 1903. 175 p. \$1.00.

Hoffman, Frank Sargent. *Psychology and Common Life*. New York: G. P. Putnam's Sons. 286 p. 12mo. \$1.50.

Lipps, Theodor. *Leitfaden der Psychologie*. Leipzig: Wilhelm Engelmann. 1903. ix + 349 p. 8vo. 9 m.

Sergi, G. *L'origine dei fenomeni psichici e il loro significato biologico*. Torino: Fratelli Bocca. x + 367 p. Sec. ed. 8vo. Lire 8.

Siegel, Carl. *Zur Psychologie und Theorie der Erkenntniss*. Leipzig: O. R. Reisland. 1903. viii + 180 p. 3.60 m.

Wernick, G. *Zur Psychologie des ästhetischen Genusses*. Leipzig: Wilhelm Engelmann. 1903. iv + 148 p. 8vo. 2.40 m.

Whyte, Alexander. *Bishop Butler*. New York and Chicago: Revell. 1903. 223 p. 12mo. \$1.25.

NOTES AND NEWS

IN accordance with the announcement of its editors the *Psychological Review* entered in January upon a new series. It will be issued in two sections; an article section, containing original contributions, appearing bimonthly; and a literary section known as the *Psychological Bulletin*, containing critical reviews, notices of books and articles, short discussions and news, appearing monthly. The new series begins under the joint editorship of Professor J. Mark Baldwin and Professor Howard C. Warren.

A CABLEGRAM to the *New York Times* states that by the will of the late Herbert Spencer all rights and property in his books and investments are given to the trustees, the Hon. Auberon Herbert, Dr. Henry Charlton Bastian and David Ducan, with instructions to employ the yearly revenue "in resuming and continuing during such period as may be needed for fulfilling my express wishes, but not exceeding the lifetime of all descendants of Queen Victoria who shall be living at my decease and of the survivors and survivor of them, and for twenty-one years after death of such survivor, the publication of the existing parts of my 'Descriptive Sociology,' and the compilation and publication of the fresh parts thereof upon the plan followed in the parts already published." Afterward all copyrights, stereotype plates, etc., are to be auctioned and the proceeds divided among a number of scientific societies. The will orders that Spencer's autobiography is to be published simultaneously in Great Britain and the United States, and requests David Duncan to write a biography in one volume of moderate size.

THE New York Branch of the American Psychological Association and the Section of Anthropology and Psychology of the New York Academy of Sciences met together on Monday, January 25, at 4 P.M. and 8 P.M., at the American Museum of Natural History, New York City. The program of the meeting was as follows: Dr. Henry Rutgers Marshall, 'Primary and Secondary Presentations'; Professor Margaret F. Washburn, 'The Genetic Relation of Organic Sensation and Simple Feeling'; Dr. Francis Burke Brandt, 'The Universe's Place in Man'; Mr. W. F. Dearborn, 'Retinal Local Signs'; Dr. Irving King, 'The Ultimate Relation between Religion and Magic: a Chapter from the Psychology of Religion'; Professor Robert MacDougall, 'The Distribution of Errors in Spelling English Words'; Dr. Henry Davies, "Dewey's 'Studies in Logical Theory.'" In addition Mr. Steele reported on the photographic investigation of eye movements which is being conducted at the Yale Psychological Laboratory.

DR. R. S. WOODWORTH of Columbia University will have charge of the laboratories of anthropometry and psychometry in the ethnological department of the Louisiana Purchase Exposition.

THE JOURNAL OF PHILOSOPHY

PSYCHOLOGY AND SCIENTIFIC METHODS

ACCURACY OF PERCEPTION OF VERTICALITY, AND THE FACTORS THAT INFLUENCE IT

A PRELIMINARY SURVEY

1. If an attempt is made to place a movable line in a vertical position, it will be found that a peculiar difficulty attaches to the task. The most delicate correction of a very nearly perfect position almost inevitably throws the line too far, and a vacillation results which is difficult to terminate. This vacillation is an effect not merely of an uncertainty due to the limitations of our ability to identify an actual position of the line with our ideal of verticality, —*i. e.*, to the degree of acuteness of discriminative sensitivity for positions nearly vertical,—but quite as much to an apparent restlessness and constant change of inclination of the line itself. The line seems alive, and baffles one's best endeavors to hold it still and subject it to a steady scrutiny. A momentary satisfaction may be obtained and a record made of the degree of error; but this error will represent not merely the sensitivity for the vertical position, but the operation of a considerable complex of other factors also. This present paper aims to give a cursory survey of the errors recorded under a variety of conditions, and of the attempt to unravel the various factors which exert an influence upon the way in which the line is seen inclined.

2. For the purpose of this investigation a line was used—usually a white thread against a black background—fixed at its lower extremity and so arranged that its upper extremity could be pulled to right and left by means of cords in the hands of the observer. The latter endeavored to place the line in a position which should seem to him vertical, and the degree of angular deviation from the true vertical was recorded. It makes much difference whether the eye is free to roam about within the field, glancing up and down the line, or is fixated on one of its points; and whether, in the latter case, it is the top, middle or bottom part that is fixated. For the better comparison of different cases, however, and analysis of the influ-

encing factors, a uniform method of examining the line was adopted, namely, the fixation of its bottom point, or, in case of indirect vision, of some point on the same horizontal level.

3. *Difference between Right Eye, Left Eye, and Both Eyes.*—The right eye tends to judge a vertical line as being slightly inclined upward to the left, when its bottom point is fixated; the left eye, as slightly inclined to the right. Either eye may, however, see it inclined in either direction, but these are the prevalent tendencies, and even when for each it inclines apparently in the same direction, for the left eye it is almost uniformly more inclined to the right (or less to the left) than for the right eye. The average position, for different persons or for the same person at different times, has varied between 0.5° R. and 1.5° L. for the right eye, and between 1.0° R. and 0.9° L. for the left eye. The difference in position for the two eyes separately has varied between 0.1° and 1.25° . These are average positions, determined sometimes by a large number of single observations. The extreme positions which under any circumstances have seemed vertical have been 10.6° R. and 4.2° L.

When both eyes are used the tendencies vary. The averages have ranged between 0.3° R. and 0.3° L. In the case of seven persons the position for the two eyes together coincided very nearly with the position for the right eye alone; in the case of eight persons, with that for the left eye alone; in four cases it was more nearly vertical than for either eye singly, each seeing it inclined in the same direction; and in one case it was more extreme than for either eye alone. In some of these cases the number of tests was insufficient to establish the certainty of the tendency noted. The thoroughly tested cases, however, are enough to show that there is a preponderant tendency for a person to be either right-eyed or left-eyed, when both eyes are used. Curiously enough, no case was met with of the type that one might naturally expect to occur, where for both eyes together the line assumes a position midway between the positions for either eye singly.

4. *Indirect Vision.*—When a point is fixated in the field to one side of the line and opposite its middle point, the vertical line appears to curve with its concave side toward the fixated point. When the fixated point is opposite the bottom of the line, the line as a whole appears to incline upward to the left if fixation is on the left side, to the right if fixation is toward the right. In one particular series, embracing 1,500 tests, the apparent inclination averaged, for fixation to the right, 1.0° more to the right than when the line itself was fixated, and for fixation to the left 0.5° more to the left. In general, the average values have varied between 0.1° and 1.5° for fixation right, and between 0.5° and 1.2° for fixation left, further than in

fixation of the line. Fixation to the right almost uniformly gave the larger effect, in some cases double that of the other. The maximum effect was found to occur in the case of one person at an angular distance of about one half degree from the line. As the fixation distance increased the effect diminished steadily and finally reversed on some occasions, though in extreme positions there sometimes occurred a secondary increase. A possible explanation of this behavior is discussed later.

5. *Effect of Inclination and Rotation of the Head.*—If the head is tipped sidewise toward the shoulder, it has an effect upon the apparent inclination of the line. Inclination of the head makes the line appear inclined in the same direction as the head. The amount of effect has varied from a very slight value up to about 1.5° . Inclination of the head backward and forward and rotation about a vertical axis also seem to exert some influence, but its nature and degree are far from uniform.

6. *Effect of Effort.*—It is possible to change the apparent inclination of the line by exerting a voluntary effort. If one endeavors to force it to appear inclined to right or left he may succeed, and the line then requires a larger correction to make it appear vertical. The degree of this effect has varied in these tests all the way from zero to 3.0° . In the case of one subject, the efforts to the left are from 50 to 100 per cent. stronger in effect than those to the right. The nature of the effort exerted is variable and difficult to analyze. It usually consists of a combination of factors, among which may enter: a mental representation of the line in the desired inclination; a mental representation as of seizing the line with the eye and twisting it, or of seizing some point of it and pulling it to one side; actual fixation to one side; inclination of head and pressing it against the head-rest, as if pushing the line with it; various strains in muscles of head, neck and eyes. That the effect is not identical with that of side-fixation and of head-inclination, already mentioned, is proved by the fact that these may be made in the opposite direction without destroying the efficiency of the effort.

Still other conditions produce definite measurable effects upon the apparent inclination of the line. Some of them are of large importance, as, for instance, the direction in which the corrective movements of the line are made (after-images of movement), the degree of illumination and the number and nature of distinguishable objects in the field. Consideration of these can be postponed a little with advantage.

7. *Analysis of Factors Influencing the Perception of the Line's Inclination.*—It is evident that these are numerous and complex, but it is not impossible that they may reduce to a few relatively simple

ones. It will be well to enumerate them rather crudely at first, and then attempt a reduction to the more important.

(a) *True Limitations of the Discriminative Sensitivity for the Vertical Position.*—This is evidently much finer than is shown by the amount of error in attempting to establish the vertical position, on account of the numerous other factors that influence this endeavor. It is impossible to isolate the one from the others and to determine its exact value. A fairly accurate idea may be gained, however, of the size of the variable error by an examination of those cases where, after acquaintance with the important influences has been secured, a special endeavor is made to hold them unchanging through a long series of tests. Even so, irregularities creep in at intervals; but steady results have been attained many times that show a very delicate ability to discriminate between different positions. One series shows five successive positions exactly the same. A series of 10 judgments contains 9 that are within 0.1° of one another; one of 14 contains 11. In one series of 10, all are contained within extreme limits of 0.2° . In a series of 15 the average error is 0.08° , and the extremes are within 0.18° of the average value. Many other series occurred where the delicacy of recognition of a definite position was but slightly less than that shown by these examples.

(b) *Purely Mental (or Central) Factors.*—Every sensory complex must be joined to a complex of central apperceptive elements before it can acquire any spatial significance at all. Preperception, which we found acting consciously sometimes, at least: in the case of effort, and which doubtless is present unconsciously in some other cases, is also of importance. But both apperceptive and preperceptive structures are built up out of closely associated sensory material gained in previous experience, and may reduce, therefore, so far as their visual elements are concerned, to sensory factors yet to be mentioned. Moreover, it is conceivable that they may be unable to operate without involving the actual presence of certain peripheral sensory conditions.

(c) *Diffusion Images and Retinal Fatigue.*—Only the portion of the line in the immediate neighborhood of the point actually fixated will cast a clearly defined image on the retina, because this portion only coincides with the horopter. The rest of it will be more or less fan-shaped. Retinal fatigue may lead to an over-emphasis of some parts of the fan-shaped image, and produce, therefore, for the moment an actually inclined image of the line on the retina. Experience shows, however, that this factor is much less influential than most of those yet to be mentioned.

(d) *Inclination of the Image on the Retina.*—This by itself means nothing spatially until apperceptively interpreted. When a natural apperceptive interpretation is once established, the relative position of the retinal elements affected is of importance. We have just seen one condition which influences the inclination of the retinal image. Another case occurs when the head is inclined to one side. In the latter case, however, when the head-inclination is conscious we are accustomed to allow for its occurrence and to make a more or less accurate correction for it. An approximately vertical line seems still vertical if the head is inclined toward the shoulder, or is upside down. If the inclination of the head were wholly unallowed for, it would result in an interpretation of the line as inclined in the opposite direction. That the direction of apparent line-inclination and of head-inclination when the latter is conscious is usually the same, seems to show a general tendency to over-allowance, or the operation of some other factor.

Still another case of changed inclination of the retinal image occurs when the line is viewed indirectly, with actual fixation on a point to one side of it. The effect in this case is usually explained as reducible to a simple matter of perspective projection. An after-image of a line coinciding with the vertical meridian of the retina will, if projected to the right and upward (corresponding to our case of fixation to the left of the base), seem inclined to the right upward, following Helmholtz's lines of direction. A truly vertical line in that position will, therefore, seem inclined to the left, in case a line whose image falls on the ordinary vertical meridian of the retina is regarded as vertical. This does not occur if the eyes are themselves turned to the peripheral position, for the effect of perspective is allowed for and interpreted, so that the true vertical still appears vertical. But in indirect vision, it seems, no such allowance is made, and that line is regarded as vertical whose inclination is the same as would be that of a vertical after-image if projected to that part of the field. Whether this accepted explanation is fully adequate is a matter to which further investigation should be devoted.

(e) *Constant Unconscious Movements of the Eye about the Fixation Point of Attention.*—Attention may be held concentrated upon a given point of the line, accompanied by the feeling that the fixation of the eye is held steadily upon the same point. Yet the eye will nevertheless be making constant slight movements in all directions about the supposed fixation point. That this dissociation of the fixation point of the eye from the fixation point of attention is constant and normal may be shown by three methods at least. While the subject is conscious of no deviation of his attention (or

of his eye) from the given spot, the constant eye movements may be detected (1) by a direct record of slight eye movements, by means of instruments attached to it; (2) by examination of the eyeball through a microscope; (3) by the projection of after-images. Of all these methods use has been made during this research. This normal failure of the eye direction to coincide with the direction of attention serves a useful purpose, in that constantly fresh retinal surfaces are presented for the unchanging stimulus, and the effects of retinal fatigue are thus prevented or delayed. But it is evident that in this way during the course of the examination of a line the effects of side-fixation are being constantly introduced and are constantly changing. From this fact, to a large extent at least, results the puzzling restlessness or aliveness of the line, of which mention was made at the outset.

(f) *Muscular Tension Apart from Actual Movement.*—This is a factor which, so far as the writer is aware, has not been considered in previous expositions of the influences that determine our spatial perceptions. Yet it would seem to exist really and to be of large importance. The evidence for it is partly introspective, partly by exclusion of other factors as a possible explanation of the results when muscular strains are present. It may be briefly summarized as follows:

(1) The line often appears inclined in one direction when fixation is on the opposite side (as shown by microscopic or after-image examination), when head-inclination is in the direction opposed to that which would produce such line-inclination (as shown by delicate records of head position), when there is no conscious preperception and no effort. Changing muscular tensions within the eye muscles could account for this effect; it is not easy to see what else could explain it.

(2) Muscular tension can be shown to be efficacious when a voluntary effort is made to cause the line to assume a given apparent inclination. The effect is much larger than could be accounted for by any other factors known—preperception unattended by muscular effort, side-fixation or head-inclination,—and may be made to work strongly in a direction opposed to and overcoming their influences.

(3) Introspection clearly attributes the efficiency of the endeavor just spoken of to the muscular efforts made.

(4) Although head and neck muscles usually cooperate with eye muscles in case a strong effort is made, yet the former may be excluded and the eye muscles alone shown to be capable of producing the results. We have cases of the apparently exclusive influence of tension in eye muscles (i.) when a voluntary effort is deliberately confined to them; (ii.) in the influence of surrounding objects in the

visual field, which produce tensions in eye muscles tending to turn the gaze upon them, and whose number and relation to interest and attention are of large importance in helping to determine the apparent inclination of the line; (iii.) when resistance to eye movements is introduced by attaching recording instruments directly to the eyeball.

Of course, no muscular tension has spatial significance unless it enters into a fitting sensory and ideational complex which permits it to be so apperceived; and a given tension may or may not be spatially interpreted, according as it is incorporated into one or another apperceiving group. If an object, ideational or external, engages attention and tends to cause an eye movement, and if steady fixation is maintained and the solicitation to movement not yielded to, it is evident that the tension induced in the muscles directly solicited to action is balanced by a corresponding tension in the opposing muscles. The tensions directly solicited, or those most clearly felt, enter into a spatially interpreted complex, as a consciousness of an object or field of objects to one side, or of a line under consideration having a certain direction, etc.; the opposing tensions enter into a different apperceptive complex and appear in consciousness, if at all, as effort of resistance. The same two tensions, however, may receive each the other interpretation, if attention is so transferred as to change their rôles with respect to solicitation and resistance. Thus either or both tensions may receive a spatial interpretation, or an effort interpretation, or may be directly felt as strain in eye muscles, according to the particular apperceptive systems into which, because of the interests of the moment and the direction of attention, they are taken up.

8. *The Most Fundamental Factors* of those above enumerated, to which or to influences on which almost all the others may be reduced, would seem to be: (a) the actual inclination of the image on the retina, together with those central associates which give it a spatial meaning. This is influenced by the actual inclination of the line, by the position of its image on central or peripheral portions of the retina, by the direction in which the eye is turned, by the slight unconscious movements which the eye is constantly making, by movements of the head as a whole, by over-emphasis of one or another portion of the diffusion image of non-fixated portions of the line, etc.

(b) Tensions in eye muscles and head muscles. Among the influences that induce these may be mentioned: deviations of attention from the actual fixation point; preperception; voluntary effort; a tendency to the persistence of previous tensions; movements of the line; attraction or repulsion of distinguishable objects, etc. There seems to be some evidence for the existence of rhythmical tendencies

to variation in tension. It is probable also that certain combinations of lines, when attended to, arouse tendencies to fixation in definite positions, or to tensions toward those positions.

9. *Reduction of Some Complex Conditions to the Simple Factors.*—(a) Preperception, expectant attention, the arousal of a mental representation of the line as having a particular inclination, probably never produces any actual effect upon its appearance unless accompanied by actual muscular effort. (b) The after-effects of movement of the line are probably due to tendencies of the eye to stop short of the final position of the line, or to go on beyond it; and to the persistence of particular changes in muscular tension. (c) The effects of fatigue are due to changes in the retinal image, and to a diminishing control over eye and head movements and muscular tensions. (d) Intensity of illumination acts through increasing or decreasing the number and intensity of distinguishable objects in the field. These in turn produce an influence on the apparent inclination of the line, and on other spatial structures, through affecting the muscular tensions; and similarly they 'steady' the whole muscular system, and increase the delicacy and strength of its control. In the dark, or in high places where the eye has little to cling to, control of the whole muscular system and often of the mental steadiness and clearness is weakened. A field of distinguishable objects sets up innumerable innervations in the eye muscles, holding them in a state of constant tension. This has at least two important consequences. It reflexly affects the innervation of the whole muscular system, giving its action greater control and steadiness. Secondly, it increases the quickness, delicacy and control of the eye's own reactions; and the presence of particular tensions, or prevalence of general tension in particular directions, in conjunction with the particular sensory and apperceptive complexes with which their sensory effects unite, determines particular spatial perceptions. The effect produced by distinguishable objects on apparent inclination of the line varies according to circumstances. If the peripherally situated objects are not attended to, their greater number, or their greater intensity, or perhaps also their greater natural interest, in a certain direction, produces the opposite effect to side-fixation in that direction. The power of an object or of a group of objects to produce this effect is greatly strengthened in case they force themselves on attention. In the latter case, however, if one distinctly does not wish to yield to their attraction, an effort of resistance may be made which is liable to be over-great, and thus an effect of practical repulsion results and the effect on the line under observation is reversed. (e) An interesting complexity of conditions revealed itself in a series of tests on the effect of fixation at different distances away from

the line, to right and left. There was an increase in effect up to a maximum a short distance away from the line; then a steady decrease through a considerable distance, proceeding so far as to reverse the illusion; and often a final increase again. In these tests the head was fixed in position and the eyes alone turned. The first phase seems to reveal the pure effect of side-fixation; this is opposed during the second phase by an increasing nearness and visibility of distinguishable objects in the side field, whose effect finally proves stronger than that of side-fixation; and in the extreme positions strong muscular strains are present and clearly felt, and these come to the support of side-fixation. The problem as to the effect of turning head and eyes together and allowing no distinguishable objects in the field is now under investigation.

10. *Practical Applications.*—It is obvious that our spatial perceptions are influenced to a large degree not only by the actual conformation of the image on the retina, and by the movements actually executed by the eye in following lines and contours, but also by the tensions existing in eye muscles apart from those involved in the actual execution of movements. We have seen how these factors affect a particular spatial perception, that of vertical direction. All the other fundamental spatial elements are similarly influenced. Not only is the vertical direction affected, but also all other directions, whether in the plane perpendicular to the lines of regard, or in the third dimension. The impression of spatial extent is determined also by the same factors. It is well known that esthetic judgments are influenced by the natural points of orientation and the natural methods of exploitation. The same is true of spatial judgments. The eye has a tendency to come to rest most easily in certain positions, determined by the combination of lines within the field, and when not at rest in that position, there exists a muscular tension toward it. Again, the eye has a tendency to follow certain paths most easily, in the exploitation of a figure. The spatial consequences of these facts can be observed most simply in the case of the well-known geometrical-optical illusions. The particular form assumed by the figures with reversible perspective, for example, is determined fully only when account is taken not only of actual fixation-points and of actually executed movements in definite directions, but also of the tensions induced in definite directions, either on the surface of the figure or toward points nearer or farther away. The details of these facts we are now investigating. In the case of the Zöllner illusion, the eye in following the parallels tends to slide unconsciously down the transverse lines a little way and to come back always to the line with an effort. Consequently the line seems further and further away, in a direction opposed to that in which the

unconscious deviations from a straight path take place. The eye does not move with equal ease in both of two opposite directions. Consequently the unconscious deviation will be greater for transversals going in one direction than for the other set, and the recently discovered unequal distortion of the different parallels will be explained. With the eye at rest, the conformation of lines is such as to establish for it certain points of easiest fixation, and their assumption, or the existence of tensions toward them, gives the distorting effect of side-fixations, which associates itself with the experiences gained during movement and supports the illusion. In the case of the Müller-Lyer illusion, the easiest fixation-point for the eye, when attention is on the end of the line, lies within the angle. If the eye actually rests on any other position of the field when the figure is under examination, there exists a muscular tension toward the point of easiest fixation. Accordingly, whether the figure is surveyed with the eye at rest, or with it sweeping over the field in any desired irregular manner, or with it following the line carefully from one point of easiest fixation to the other while attention goes from actual end to actual end, the perceived length is determined by the amount of actual movement involved in the latter case; and thus the apparent difference in length of the two parts of the figure is explained. Angles of different degrees and of different lengths of sides, and end-figures other than angles, involve different positions of the point of easiest fixation, and hence differ in the degree of illusion produced.

The most important result of this whole study is the establishment of the fact that the internal tensions of the muscles of the eyes (and of other bodily parts), apart from those involved in the execution of actual movements, are of the greatest consequence in determining the details of our spatial perceptions.

E. B. DELABARRE.

BROWN UNIVERSITY.

RECENT CONTRIBUTIONS TO THE LITERATURE OF SCHOLASTICISM.

GENERAL interest in that phase of philosophic thought which is known as scholasticism may be said to date from the publication of Cousin's '*Ouvrages inédits d'Abélard*' (Paris, 1836). Since that time much, indeed, has been done towards the historical presentation of scholasticism; much, however, still remains to be done, especially in the matter of completing our fund of original literature referring to scholastic philosophy. It is the purpose of

the present paper to indicate briefly the more important lines of historical investigation in this department of the history of philosophy, and to mention some of the most recent contributions in each line.

Those who are competent to judge tell us that there still exists in the libraries of France, Italy, Germany and England a vast amount of medieval philosophical literature in manuscript, and all who are interested in scholasticism realize that the publication of material of this kind is the form of neo-scholastic activity which, before all others, recommends itself to the modern student. The difficulty of deciphering, collating and annotating medieval texts is well known; and if, on account of this difficulty, the output has been comparatively meager, we may console ourselves with the reflection that the work is being carefully done. The group of scholars who, with Dr. Clemens Baeumker, of Strassburg, as editor-in-chief, began in 1891 to edit the unpublished treatises of the medieval philosophers in the *Beiträge zur Geschichte der Philosophie des Mittelalters* (Münster, 1891, ff.) have given us texts and critical studies which can not be too highly praised. Their latest publications are: Espenberger, 'Die Philosophie des Petrus Lombardus und ihre Stellung im zwölften Jahrhundert' (Bd. III., Heft V., 1901); Willner, 'Des Adelard von Bath Traktat De Eodem et Diverso'; Baur, 'Dominicus Gundissalinus, De Divisione Philosophiæ'; Engelkemper, 'Die religionsphilosophische Lehre Saadja Gaons über die hl. Schrift'; Schneider, 'Die Psychologie Alberts des Grossens' (these four titles constitute Band IV., 1903). This collection, it is hoped, will realize the plan contemplated by Barach, who in 1876 began the publication of 'Bibliotheca Philosophorum Mediæ Ætatis.' Barach's project was abandoned after the publication of three short treatises (Innsbruck, 1876-8). Next in importance to Baeumker's *Beiträge* is the collection of Belgian philosophers edited by de Wulf, of the University of Louvain, under the title 'Philosophes belges'; two volumes have already appeared, 'Le traité des formes de Gilles de Lessines' (Louvain, 1901) and 'Les quatre premiers Quodlibet de Godefroid de Fontaines' (Louvain, 1903). What de Wulf is accomplishing for the Belgian scholastics is being done for the medieval philosophers of Spain by Pelayo, who has edited several treatises of the early schoolmen in his 'Heterodoxes Españoles' (Madrid, 1880 ff.). Under the head of recent publication of original texts mention must be made of the edition of the 'Impossibilia' of Siger of Brabant, by Père Mandonnet, of the University of Freiburg in Switzerland.

After the publication of manuscript sources the most important work in the department of scholastic philosophy is the republication in critical editions of the 'Opera Omnia' of the schoolmen. This has

been done in the case of St. Bonaventure, St. Thomas, Albertus Magnus, Duns Scotus, Denis the Carthusian; and a new edition of the works of Roger Bacon is promised for the near future. Unfortunately, the older editions, unattractive as they are to the eye accustomed to modern typographical finish, and uncritical as they sometimes are in the matter of 'attribution,' are, in some instances, superior in textual accuracy to the more attractive modern editions.

The reconstruction of the educational environment in which the scholastics worked is by no means the least important part of the task of the historian of scholasticism. To this department valuable material has been furnished in recent years. First in importance is Denifle's '*Chartularium Universitatis Parisiensis*' (Paris, 1889 ff.), which renders accessible the original material for the history of the University of Paris—the center of scholastic philosophy and theology during the golden age of the scholastic movement. Denifle has also furnished a more general picture of medieval university life in '*Die Entstehung der Universitäten des Mittelalters bis 1400*' (Berlin, 1885). On a smaller scale Türnau's '*Rhabanus Maurus*' (Munich, 1900), Clerval's '*Ecoles de Chartres*' (Chartres, 1895) and Mignon's '*Origines de la scolastique*' (Paris, 1895) present a picture of the educational conditions which determined the development of scholasticism in the various centers of medieval culture.

Finally, critical work of a high order has recently been done in the publication and discussion of biographical material relating to the philosophers of the Middle Ages. It has long been recognized that the materials in use, consisting of chronicles and 'lives' often carelessly compiled, were in need of a thorough critical revision; it was necessary to reconstruct dates, to discuss the question of the reliableness of the chronicler, to control his exaggerations and his inaccuracies, and, generally, to apply modern methods of historical research to the vast amount of material available. Besides, new and valuable material has been discovered. Thus, to mention merely the most important, the '*Analecta Bollandiana*' published by the Jesuits at Brussels has furnished new data for the life of Albertus Magnus, the Franciscan editors of the Quaracchi edition of the works of St. Bonaventure have rewritten the life of the Seraphic Doctor from new materials, the coeditors of the *Archiv für Literatur- und Kirchengeschichte des Mittelalters* (Freiburg im B., 1885 ff.), Fathers Denifle and Ehrle, archivists of the Vatican, have published important materials for the biographies of Henry of Ghent, Peter John Olivi, Master Eckhart, etc.

The foregoing list will, it is hoped, give the reader some conception of the amount of original work that is being done in the department of scholastic philosophy. The attention which this work

receives is evident from the recent increase in periodical literature of the second order, namely, discussions, appreciations, résumés, which are to be found in the current philosophical magazines, especially in those which, like the *Revue Thomiste* and the *Néo-scholastique*, are specially devoted to the study of the philosophy of the schools. In a subsequent article an account will be given of the most important of these recent studies.

WILLIAM TURNER.

ST. PAUL SEMINARY, ST. PAUL, MINN.

NOTE ON THE IDEA OF A 'MORAL SENSE' IN BRITISH THOUGHT PRIOR TO SHAFTESBURY¹

THE ethical problems of the seventeenth century were stated mainly in terms of rights and duties. Natural rights and laws of nature were familiar to the readers of Hobbes, Cumberland, and Locke. The moralists of the eighteenth century, for the most part, consider rather the instincts and sentiments. The first expression of the new attitude is usually attributed to Shaftesbury. But while Shaftesbury and his more systematic follower, Hutcheson, deserve credit for the extended formulation and development of the doctrines of moral sense and benevolent instincts, we find distinct statements of the essence of the doctrine and even of the technical term in at least two divines, Tillotson and Barrow. The transition by which an old concept is made to do duty for a new idea has an interesting illustration in Tillotson's definition of the term 'Light of Nature.' This term with Descartes had borne the meaning of discernment or intellectual recognition. With Cumberland and Locke reason was a corresponding principle. But Tillotson, in sermon 101, defined 'Light of Nature' as 'a natural instinct, by which I mean a secret impression upon the minds of men, whereby they are naturally carried to approve some things as good and fit, and to dislike other things as having a native evil and deformity in them.' Here the 'light' is affirmed to be an 'instinct,' and if the phrase 'approve as good' may seem to imply a judgment which has a rational element, the term 'dislike' is purely a term of feeling; while the word 'deformity' naturally suggests the æsthetic qualities which play so large a part later. The transfer of the moral categories to the realm of feeling is thus well on its way.

Much more explicit statements are found in Barrow, whose sermons were published in 1685; and these statements take on

¹ Read at the meeting of the American Philosophical Association in Princeton, December 30, 1903.

additional interest from the fact that Shaftesbury was acquainted with this author and speaks of him with esteem in his 'Letters of a Noble Lord to a Young Man at the University.' The important points in Shaftesbury's account of human nature are: (1) His championship of a social 'herding' instinct; (2) his claim that happiness depends upon having the generous affections strong, and that to have the private affections too strong is to be miserable; (3) the immediacy of the approval or disapproval which we pass on moral acts. This immediate approval is made analogous to the æsthetic feeling, or sometimes to the sensuous reactions of smell and taste. All these doctrines are explicitly stated by Barrow. The first appears in the following from sermon 62: "Nature implanted in our constitution a love for society and aversion from solitude . . . a generosity innate to serve the public and promote the benefit of society." One of the two aspects of the second doctrine is contained in this sentence from the same sermon: "Even a true regard to our own private good will engage us not inordinately to pursue self-interest."

The third doctrine, that of immediate approval by a 'sense,' is stated in the following, and from the fact that the passage is found in at least two sermons (26 and 28), the doctrine was evidently a favorite with its author: "The practice of benignity, of courtesy, of clemency, at first sight, without any discursive reflection, doth obtain approbation and applause from us; being no less grateful and amiable to the mind than beauty to our eyes, harmony to our ears, fragrance to our smell and sweetness to our palate; and to the same mental sense, malignity, cruelty, harshness, all kinds of uncharitable dealing, are very disgustful and loathsome."

JAMES H. TUFTS.

UNIVERSITY OF CHICAGO.

DISCUSSION

PROFESSOR PIERCE ON SPACE PERCEPTION

I CAN not understand Professor Pierce's allusion to what he supposes has been established since 1897, unless it means to refer to the discussion between Professor Stratton and myself that year on the problem of 'upright vision' in the *Psychological Review*. But if he assumes that my article meant to deny that it is a problem of vision he has wholly mistaken it. It was my main purpose to show in that paper that whatever tactual 'uprightness' may exist, there is also a visual 'uprightness' which is convertible with the inversion

of the relation between the retinal image and the object, according to the laws of optics. If he thinks that Professor Stratton made out his point in the case I can only say that he has read my paper in vain. No doubt the conception of 'upright' as ordinarily used is a synthesis of visual and tactual experiences involving association, but each sense has its own problem, and if we do not wish to use the term 'upright' to denominate that of vision, the fact does not eliminate the inversion of the relation between the retinal image and the perceived object, as conceived by the laws of optics. Hence I must consider the problem as one of vision, whatever may be said about touch.

As to the rest of the case, my whole argument conducted in the paper on binocular vision in the memorial number of the *American Journal of Psychology* was an *ad hominem* one. I was not concerned with any questions of the retinal image as a fact, nor with any special interpretation of Hume's 'impressions,' nor with any cortical action. I do not care what these may be. I was dealing with the usual assumptions about these and their consequences. So far as I know, they may be wholly false. In fact, I profess entire ignorance as to what goes on in the cortex and in the retina. Further, I shall say that I do not believe that any physiologist or psychologist knows anything about what goes on in the cortex. We have plenty of theories about it based upon analogies with sense experience, which are just as good and just as bad as all talk about the retinal image. You can not get any belief in the existence of the cortex without assuming the transcendency of perception. If you mean to be sceptical about objective perception you must not talk about cortical facts of any kind unless they are treated as hypothetical. For all that we know directly, the cortex has no spacial qualities at all, either bidimensional or tridimensional. The free speculations on it and its functions, in so far as immediate knowledge is concerned, are only so much theory which we tolerate because we do not wish to substitute idealistic speculation for physiology. But granted that we know all about the cortex as a spacial object, how do its processes explain space perception? What are its processes and how are we to conceive them? We talk very glibly about them in our physiology and psychology, and are taken to have knowledge of them, but what else are our conceptions but the most abstract and speculative? When dealing with epistemological questions, I for one shall not allow myself to be fooled by all this speculation about cortical phenomena. They may be anything you please. I do not care what they are. I am and was concerned only with the question of consistency and clearness in the Berkeleian conception of vision. If it were shown by psychology and physiology that we

have had false notions of the retinal image and of Hume's 'impression,' my *ad hominem* argument with Berkeley would not apply, but I should be left with my conclusion quite as intact as before, since there would be no basis for that school at all.

As to Hume's 'impression' and 'sense experience,' I can discuss them when we are clearly told what they are. I have never yet seen any more definite or clear idea of these than I have found in the usual hotch-potch of philosophic abracadabra. I would like to know what they are. I merely observe that all recent philosophy talks about 'experience' in a way that sometimes implies its inclusion of everything, and sometimes its Lockean limitations, which are generally negatively defined. The former conception makes the term useless in philosophy and the latter leaves us where Locke was. I do not pretend to discuss the epistemological problem in any *ad rem* fashion from either point of view. Hence I try neither to transcend 'experience' nor to remain within it, until I know what it is. My discussion in the paper reviewed by Professor Pierce had no reference to the nature of 'impressions,' but to certain conceptions of them, and these not my own. I can touch upon the question whether perception makes additions to sense experience—actual conscious sense experience—only when I have found out what this is. I have never yet seen any intelligible statement of what it is. All the transcendency that I have in mind is that which has to be admitted when we talk about cortical existence and processes, and was designed to justify any talk about them at all.

JAMES H. HYSLOP.

NEW YORK CITY.

REVIEWS AND ABSTRACTS OF LITERATURE

Studies in Logical Theory. JOHN DEWEY. The Decennial Publications of the University of Chicago. 2d Series, Vol. XI. Chicago, The University of Chicago Press. 1903. Pp. xiii + 388.

This book is first of all an account of the nature of knowledge, but it soon becomes a theory of experience and even of reality. Taken as a whole its thesis is, in the words of Professor Dewey (preface, x), that "knowledge . . . must be . . . reconstructive or transformatory (of experience); since Reality must be defined in terms of experience, judgment appears . . . as the medium through which the consciously effected evolution of Reality goes on." The first ten chapters are devoted mainly to the theory of knowledge and experience, and the last chapter mainly to the philosophic aspects of the theory. As the book has attracted much attention in America its contents will be summarized very briefly here, that I may pass at once to a criticism of its fundamental positions.

In the first four chapters Professor Dewey outlines the logical system. In Chapter V. Dr. Helen B. Thompson criticises Bosanquet's theory of judgment upon this basis; in Chapter VI. Dr. S. F. McLennan describes three stages of judgment; in Chapter VII. Dr. M. L. Ashley shows that the predicate of judgment is an hypothesis. Chapter VIII., by Dr. W. C. Gore, treats of 'Image and Idea in Logic.' Chapter IX., by Dr. W. A. Heidel, on the 'Logic of the Pre-Socratic Philosophy,' has a mainly historical interest. Chapter X., by Dr. H. W. Stuart, on 'Valuation as a Logical Process,' shows that there can be no objects that have not ethical or economic value; and Dr. A. W. Moore in Chapter XI., under the title 'Some Logical Aspects of Purpose,' presents, in criticism of Professor Royce's absolutism, the philosophic thesis that reality is essentially dynamic, not static.

The general position may be briefly outlined as follows: Judgment (which is the essence of knowledge) can be understood only if we know the conditions of its origin. Now we think and judge only when our habitual reflexes do not meet our needs. We have to seek some new course of action; the proposing of this to ourselves is entertaining an idea or plan of action, an hypothesis, which is crystallized in the judgment 'reality is such as to permit this action.' If the plan turns out to be useful for our need, it is correct—the judgment is true; if not, the judgment is erroneous. The real-ideal distinction is that between stimulus of environment and plan of action or tentative response. Both real and ideal are equally experiences of the individual man. Knowledge is only the means of gaining control over our environment or bettering our condition, is wholly teleological. Any dualistic theory of reality and idea is unable to find a criterion of truth and error; the present monistic view avoids this difficulty. In discussing this position I shall call it by the widely accepted term 'pragmatism.'

First of all one must beware of interpreting this view too narrowly. When we are told that reality changes always, we should not jump to the conclusion that no sort of permanence is allowed to anything in our experience. The pragmatist argument is after all not very far from Kant's. There must be knowledge, said Kant, so there must be certain forms of it, and a permanent self to remember; and a pragmatist might say: I need knowledge, therefore I find it most useful to erect certain standards or pigeon-holes for convenient reference, to classify my materials; and these I had best keep practically constant. Perhaps there are no pure pragmatists; perhaps they simply mean to insist on one important aspect of experience among other and equally important aspects.

But the question I wish to raise is, have we here a *philosophic* account of experience, that is, one which applies universally to all the facts? Have these writers not selected a certain aspect of experience and erected that into a metaphysical principle, neglecting other aspects quite as clearly present, and thus hypostasizing what is only an abstraction? (And note that the pragmatist, in Hegelian fashion, regards abstraction as falsification.) In short, have they been truly empirical, as they profess to be

when they take 'evolution' (save the mark!) as a war-cry? I think they have not, that they have been false to their own initial method, and have neglected some very commonplace facts.

We are told by Professor Dewey that the only way to understand the nature of any process is to see how it arose, what called it forth. This rule is, I believe, often found useful in biology, and perhaps in psychology; but have we any right to generalize from these? Other sciences use a different method. I see a colorless liquid in a glass before me that looks like water. To test this I take it to a laboratory, pass an electric current through it, and get two gases with volumes two and one, which by recognized tests I prove to be hydrogen and oxygen. The method here is analysis, bringing the thing into relation with other things, to see what effects arise. We do not care to know how it is made, but rather what it becomes. Indeed, in most cases we judge the nature of a thing by its effects rather than by the way it originated. Why not generalize that method as well as the other? The fact is, pragmatism borrows this genetic method from just one of the sciences (perhaps because it forms the most useful basis for pragmatism) and straightway declares it the only genuine philosophic method. But, you say, in the other sciences we are dealing with inanimate, unconscious things, which are only abstractions anyway. I answer that you take your method from a science (biology) which deals with what you must condemn as abstractions, namely, individual organisms, which are to any one of us only parts of the total presented world. But, you say, the 'functional' method has always been found useful in dealing with vital and conscious phenomena, and therefore must be presupposed here. Now, in the first place, this is not quite true, for it has not explained the origin of variations, but only their perpetuation. And second, even if it were strictly true, it gives no ground for asserting dogmatically, when we come into what *looks* like a quite different region, that of logic, that the *only possible* method is the functional. This is only a new kind of apriorism, with purpose as its chief category. There may be cases of judgment which the 'functional' view throws no light upon. Of course this view fits the judgments which we make for practical purposes. If, to use Dr. Stuart's illustration, I am chased by a wild beast and see a small tree near me, I need to know whether it will bear my weight before attempting to climb it rather than seek some other escape—and the judgment here is my tentative response to the stimulus of the beast. But do we never judge except to get out of some scrape? Or to put it more fairly, perhaps, do we never judge except to better ourselves? Our writers are careful to choose their illustrations from practical needs. But is all life made up of practical needs? Their own studies in evolution should have taught them that, although the theoretical interest may be far too much neglected to-day, it was not always so. Science and philosophy arose only when the practical needs of men were so well adjusted that a leisure-class could grow up, with time for theoretical interests. The early thinkers did not think because their environment compelled them to think or

die. They thought because they wanted to understand the world. This theoretical interest is lightly dismissed by our school with the words 'but this too is a need.' In the first place this is trivial; it means that we don't try for anything that does not thereby become to us an end. But, second, what is this theoretical need? It is one which is satisfied only by a belief in an external reality which does not alter with the thought of the observer, but which those thoughts represent. If this is a need, it is a need of abolishing pragmatism.

Even in judgments of practical need the theoretical attitude is present. When chased by the wild beast, I am compelled to judge, to make an hypothesis about the strength of the tree. This framing of the hypothesis is a definite state of mind, a single experience. If I test it by climbing the tree, this is also a single experience, distinct from the other. The judgment is thus distinct from the experience to which it refers. The man judging knows that he is referring to a future possibility and has present to his mind the content of his judgment and its reference to something (the future experience) not given, yet something not affected by his judgment about it; rather his judgment is affected (as to error or truth) by the nature of that future experience. That is of course the theoretical attitude, and it is the attitude a man naturally takes; for it is the most useful one. In order to fulfil the practical need one must act for the time as if he were not a pragmatist. Now I shall not dwell on the logical objection that it is just as hard to see how a judgment can refer to a future (or past) experience as to see how it can refer to a reality outside experience. But it certainly looks as if we could not be pragmatists when we are in the thick of the practical struggle. We must be good old-fashioned realists then. Indeed, Professor Dewey admits that we often find it useful to hypostasize some parts or aspects of experience into objective realities. For that matter, the extreme elasticity of 'useful' and 'need' suggests that some logicians may find it more useful to their intellectual needs to reject pragmatism.

The pragmatist can not help talking as if there were a reality whose character does not in the least depend on our judgments. For *either* he must grant that the real is anything that comes along and satisfies my present whim (which of course he would not do), *or* he must appeal to something—the empirical character of human nature, eternal principles, or what not—as containing a standard whereby to judge what whims we should or should not entertain, and can or can not be satisfied. His appeal to the nature of experience, or what not, however, is the theoretic attitude over again—observer and facts observed. He means his words to correspond to facts of experience, and he does not when he is writing out his system of pragmatism mean to have his words remould or alter in anyway those facts. The 'reconstructive' theory will not serve as a refuge here, because it has to meet the following difficulty: If reality is reconstructed by us (we might as well say, in part created, for we mean at least creation of its form) then the part created is dependent on our momentary whim or else on a stable permanent basis in our intellectual nature. The first alternative will of course be

denied: so taking the second, this remoulding must at least not alter those categories which constituted that permanent basis—otherwise the second alternative, which we agreed to take, would be destroyed. In the description of those categories, however much this may remould them, something must remain unaltered, however we describe, define, conceptualize, etc. Now this unaltered part, I take it, we can not very well call unreal—but if so, we have a reality which is not in the least altered by our description and definition of it. And if this must be the case with categories, why may it not hold, too, of the objects given in sense-experience?

Another basis for the system in its idealistic aspect is found in their criticism of the dualistic presuppositions in Lotze's, Bosanquet's, and Bradley's theories of judgment. Now one may perhaps admit that these theories do not offer a quite satisfactory account of the method by which our judgments get a direct hold upon reality itself. It has already been suggested that there is a corresponding dualism in the pragmatic theory of judgment, because actually a judgment refers to some aspect or part of experience not at the moment present to us. I now wish to point out another difficulty, which resides in their description of an idea as a plan of action and of fact as the successful, though perhaps never quite complete, fulfilment of such plan. If an idea is a plan of action, the success of that plan is determined, at least in part, by the nature of the environment. Call the latter one experience if you will—we at least have two distinct regions of experience, the physical and the tentative, hypothetical, the plan of action. The truth of the latter is supposed to mean that they can be carried out, are not inhibited in the process. But the carrying out, or inhibition, is regarded as dependent upon the nature of the environment. The strength of the tree holds me up, or my weight, pressing down upon a branch, breaks it. We simply can not avoid speaking in causal terms here; and that not because we have observed uniform sequences, but because the fulfilment of a plan is regarded as *due to* something other than the plan itself. If there is no necessary connection between them, then the success of the plan might go along with any kind of an environment, and could not be regarded as an unambiguous index of the nature of that environment—in short, it would not be a true description thereof. To say an idea, or rather the judgment containing that idea, is true, means that the environment conditions its fulfilment. If it did not mean this, truth has no necessary reference to fulfilment—but the pragmatist claims that it has. His category of purpose then includes that of cause. Nor can he take refuge in the commonplace evasion that this is only a subjective synthesis—for purpose is meant to have factual validity. I say only that if it does, causation must be treated just as respectfully. Now it happens that Professor Dewey himself treats this category with lofty scorn. (In his paper, 'The Superstition of Necessity,' *Monist*, III., 362). This, however, may be merely accidental. At any rate, the pragmatist has this problem of causation on his hands, and, to judge from the history of philosophy since Hume, it seems to be a more

difficult problem than the one which pragmatism pronounces insoluble (that of the knowledge of external reality)—for the attempts at solution of the former have been less frequent than of the latter.

The spirit of this criticism has been that the empirical method with which pragmatism sets out is indeed the only correct one, but that it has abandoned this method. In actual experience, even when engaged in the 'struggle for existence' we regard and seek other things than our own advantage. We do discover truth by analysis of the present as well as by the study of origins in the past. We find that we are compelled to use certain standard categories—*e. g.*, permanent reality, causation—and even the pragmatist has his *a priori* category of purpose. Pragmatism in neglecting the analytic study of these categories is narrow and unphilosophical. On the other hand, one must admit that it is a very essential guide of method. In seeking to know the real world, we best advance by noticing the most fruitful hypotheses, those which embrace the most facts. But this is only a matter of subjective method, for the wider collection of facts is no more real than the narrower.

W. H. SHELDON.

COLUMBIA UNIVERSITY.

The Standpoint of Experience. J. E. CREIGHTON. *Philosophical Review*, November, 1903, pp. 593-610.

While we all claim to be empiricists as basing our philosophies upon 'experience,' this term, 'far from being a clear and transparent medium that presents to us facts in unambiguous and unmistakable form, is rather so many-sided and complex, in some relations so shifting and unstable, as to be capable of yielding various and even contradictory readings.' Different points of view result in different selections of facts and thus give an *a priori* bias to every philosophy. I. 'Definition and determination of the true standpoint of experience is, in a certain sense, the essential . . . problem of philosophy.' The test of the adequacy of any experience must be intelligibility, *i. e.*, 'completeness and consistency both of facts and relations.' This implies apprehension of experience through intelligence; precludes the possibility of a 'pure' or presuppositionless experience—an experience *ab extra*; and requires that in every stage experience contain 'the moving principle of thought as its dynamic and integrating factor.' What, then, is the standpoint of experience for the philosophy of our time? Obviously, not that of the plain man, but that reached through the development of philosophical thought. Hence, the important question is: 'What may fairly be said to have been established through the reflection of the past and the discussions of our own day?' II. In answer, the author gives three propositions: (1) 'Experience is not a stream of subjective processes, existing as mental modifications in a thing called mind.' Experience shows no such disjunction of subject and object, body and mind, as this would imply; it is 'not the resultant of a mechanical interplay of two independent things, but the concrete expression of rational life, having subject and object as organic, though distinguishable members of its essen-

tial unity.' (2) 'The relation of subject and object in experience can not be adequately expressed in terms of cause and effect.' Parallelism, *e. g.*, shows that 'the relation of body and mind is no external and occasional relation of two separate entities, but is so close and intimate . . . that it can not be adequately described by the mechanical notion of action and interaction.' (3) 'The mind is not one particular thing separated from other things, but as a true individual it contains within itself the principle of universality.' This is 'shown by the fact that it is able in one indivisible act [reason] to differentiate itself from things and to relate them to the unity of its own life.' III. The standpoint of special sciences views experience as a collection of things to be observed and operated upon externally. Philosophy deals with experience from an internal point of view, as we actually live it; and this, indeed, is what makes philosophy preeminently the science of experience. IV. The philosopher's business is, on this view, to interpret experience, give appraisements of our various ideals—rational, ethical, esthetic—and discover the categories that will preserve truth and harmonize the ideals. Necessarily the process is teleological, with the world regarded as an instrument for the realization of ends. This is not subjectivism—the 'hard discipline of the real world' prevents that—but at the same time it subordinates the real to the ideal, the whole significance of facts in experience being due to conscious selection of them. The necessity for the subordination of the real to the ideal springs from the fact that subject and object as functions are not coordinate. Functions 'imply a central unity which is something more than the mere togetherness of parts. . . . The fact of functional relationship implies the existence of an inner pervading identity running through the parts. In experience this principle of identity comes to consciousness of itself by distinguishing itself from the objects in which its nature is expressed and embodied. And in this act of discrimination and recognition there is to be found the central principle in the light of which the whole process of experience gains significance and the possibility of interpretation.' Hence, 'to give a philosophical interpretation of experience is to show its relation to the ideals and purposes of a rational self-consciousness.'

H. B. ALEXANDER.

Les éléments et l'évolution de la moralité. M. MAUXION. *Revue Philosophique*, July and August, 1903, pp. 1-29 and 150-180.

Professor Mauxion finds the present time peculiarly without a well-based morality. Approving the reduction of morality to a factual basis, he sees danger in identifying morality with sociality and in finding the basis of individual morality in social morality. It is a gratuitous hypothesis, he says, to regard society as an actual organism, because individuals are not fixed like cells and, moreover, have an independent value. The social organism theory would necessitate the recognition of groups or castes as in India and also does violence to the classification of sciences, reducing sociology to biology. Social and moral progress differ as much as scientific and esthetic.

The study of morality, however, must not go to the other extreme of the individual, *a priori*, building up what is right without regard to circumstances. Hence we will regard it from the evolutionary (genetic) standpoint.

But how speak of progress without some conception of a good to start with? He answers that the conception of the good is composed of two factors, intelligence and sensibility. Progress in the former consists in more perfectly conforming thought to reality, and in the latter, is a grasping of the harmony of things by the heart instead of the reasoning. Hence progress in morality is an increasing sympathy with the rhythms of the universe.

A more careful analysis of the idea of the good gives three elements: (1) esthetic order, the self-directed duties especially, or the individual perfection; (2) logical order, including proportion; (3) sympathetic or altruistic order, whether active or passive.

These three elements, though instinctively blended, are distinct. They vary independently in respect to periods and races, and excite different emotions in us when we contemplate them.

Having found the elements, we now proceed to trace their evolution.

1. *Esthetic Order*.—Among men admiration of stature and strength came first, then courage, prudence, patience, strength of soul, wisdom, stoic indifference, asceticism, good-will. The goal will be to harmonize all these ideals.

2. *Evolution of the Element of Logical Order*.—This element, though imposing itself with incomparable force, is nevertheless dominated as to its development by the preceding element. Primitive man was not better than the modern man, as though the eighteenth century, nor was he absolutely ferocious, as said Hobbes. Within the tribe there would generally be peace. A few because of greater strength would obtain more prey and booty, and as this *proportionality* of means and influence became a *custom* the idea of justice would be founded. What had been would be regarded as what ought to be. This idea of justice would receive further definition when the rewards of an expedition would be divided proportionately. Here would come in the esthetic element, the particular form of proportion being determined by the stage of evolution which the esthetic element had reached. Virtue then determined rewards. A future life was postulated by some when facts seemed to do too great violence to the idea of justice. Others, like the Stoics, found the proportionality not destroyed by circumstances, provided man retained his ego.

The idea of justice appears in time to have a different basis from that of proportionality and men speak of a person's right to his life, his liberty, property, etc. Some would give utility as a basis for this, and others fellow-feeling. But originally there was no regard for man as an individual, quite the contrary. How, then, has it come about that proportionality was transformed into equality? Many causes—the endeavor of the highest to make all below equal; the natural tendency of the higher classes to degenerate; above all, the change in the esthetic

element and the corresponding increase in the sympathetic element. Such esthetic ideals as patience, wisdom, stoicism, asceticism and good-will were strong factors in changing proportionality into equality. Equality, however, does not give an idea of justice according to facts, so that our ideal must be a more exact proportionalism.

3. *Evolution of the Sympathetic Element.*—This element is rather independent of the two preceding, but influences them. The love of animals for persons and places shows that sympathy can not be, as Schopenhauer thought, reduced to physiological love. The basis of sympathy is in the spontaneous tendency of similar organisms to enter into harmony; that is to say, in the instinct of imitation. Similarity begets attachment, and *vice versa*. Passive love progresses with the physiological and mental development. Not so is it with active love.

The first stages of sympathy come when men wandering together in groups experience the same dangers and hopes. This instinctive element is fortified by reflection and common interests, and still more when the domiciles are fixed, giving patriotism. The patriarchal family developed out of promiscuity, when one man would be strong enough to retain his own wife or wives as he did his arms. The family associations were very strong factors in developing the sense of sympathy and solidarity. Out of it grew pity, then benevolence and charity.

Professor Mauxion thinks that this account of the genesis of morality makes unnecessary the chimeras of an absolute good or of a categorical imperative or of inherent personal rights, and avoids much of the mystery and confusion with which the subject of ethics is filled; the idea of solidarity and harmony will supplant that of interest.

By way of comment on Professor Mauxion's article we may venture to say that all will welcome the treatment of ethics from the genetic standpoint. If it be objected that the sense of harmony which he gives as the basis for the evolution of morality in the present particular direction is too weak an ethical motive, it may be answered that he makes out a strong case for custom as giving force to this motive.

That in his primary analysis he is obliged to distinguish between grasping the harmony with the mind and grasping it with the heart, is not so much his fault as it is the fault of psychology, which has not yet seriously grappled with the place and the origin of the value element in experience.

GEO. R. MONTGOMERY.

JOURNALS AND NEW BOOKS

THE MONIST. January, 1904. Vol. XIV., No. 2. *Primitive Rome* (pp. 161-176): G. SERGI.—'The problem . . . is to determine who were the founders of Rome.' The author concludes that 'Rome was founded under the influence of the Mediterranean civilization and especially of the Etruscan . . . and of ethnic elements already mingled. . . . The Aryans gave only the language.' *Ants and some other Insects* (concluded, pp. 177-193): AUGUST FOREL.—On the basis of evidence ad-

duced in this and previous articles the author concludes that 'The senses of insects are our own. Only the auditory sense still remains doubtful so far as its location and interpretation are concerned. A sixth sense has not yet been shown to exist, and a special sense of direction and orientation is certainly lacking.' 'In social insects it is possible to demonstrate the existence of memory, associations of sensory images, perception, attention, habit and simple forms of inference and adaptation.' The numerous odor qualities can constitute a spatial order, and 'In combination with the powerful development of the cerebrum, the topographical olfactory sense of the antennae constitutes the key to ant psychology.' *The Still Small Voice* (pp. 194-206): EDITOR.—Dr. Carus argues that the higher criticism and the physical sciences are preparing the way for a nobler and truer form of religious faith, and that only the sensually minded can permanently regret the substitution of an abstract eternal principle for a personal God. *A Buddhist Genesis* (pp. 207-214): ALBERT J. EDMUNDS.—This mythical account of the Fall dates from the fifth to the first century B. C., and is here translated for the first time from the original text. It is very quaint and beautiful and describes the various steps in the degeneration of man with the corresponding steps in the evolution of the world, the process culminating in the invention of human institutions. *The Higher Criticism* (pp. 215-252): GEO. W. GILMORE.—In the hope of removing the prejudice against the higher criticism, which is prevalent even to-day, the writer points out the injustice and absurdity of regarding the movement as irreverent in spirit or in results, or as animated by a special hostility to the Bible. *The First Buddhist Council* (pp. 253-282): TEITARO SUZUKI.—The writer has collected materials from Chinese sources on which he bases an account of the doings of the First Convocation, the various incidents connected with it, and the attitude assumed towards it by different schools of Buddhism. *Literary Correspondence, France* (pp. 283-293): LUCIEN ARRÉAT.—A critical résumé of recent French contributions to philosophy and psychology. Criticisms and Discussions. *Physics and Metaphysics* (pp. 294-300): PAUL R. SHIPMAN.—The writer agrees with Sir Oliver Lodge's assertion that life directs energy, but opposes the inference that it is therefore immaterial. Book Reviews. Notes.

PSYCHOLOGICAL REVIEW. Article section. January, 1904. Vol. XI., No. 1. *The Participation of the Eye Movements in the Visual Perception of Motion* (pp. 1-14): RAYMOND DODGE.—Experimental examination of the different types of eye-movement shows that kinesthetic sensations, arising therefrom, can not form the basis for the visual perception of motion. An object projected throughout on the same point of the retina does not appear to move when the eye moves. Even when the eye is following a moving object, that object does not seem to move if its image is really stationary on the retina. For the most part, these movements of pursuit are not accurate enough to prevent some motion of the image on the retina; the appearance of movement, here and always, depends on the motion of the image on the retina. *An Inquiry into the*

Nature of Hallucinations, I. (pp. 15-29): BORIS SIDIS. — Normal perception, illusion and hallucination are currently distinguished by reference to their objective validity. The author attempts a distinction in purely psychological terms, based upon an interesting reexamination of the process of perception, which is found to be independent of memorial representation. In normal perception, the 'sensory nucleus,' resulting directly from the external stimulus, is immediately enveloped by 'secondary sensations'; in illusion, the nucleus is enveloped by secondary sensations not properly belonging to it; and in hallucination the sensory nucleus is overwhelmed by secondary sensations, so that the perceptual compound is no longer centered about the sensation proper. For instance, a visual hallucination may be aroused by an auditory sensation. Hallucinations, as well as illusions, are of peripheral origin. *The Limits of Pragmatism (pp. 30-60):* J. MARK BALDWIN. — The pragmatic method, useful in genetic psychology, and valid up to the point of transition to logic or metaphysics, leads, if adopted as a universal philosophy, to inconsistency in the treatment of such problems as the environment, universal truths, fact and 'meaning.' It commits the 'genetic fallacy,' by fixing on one term of a dualism as the only reality, whereas both terms have developed only in relation to each other. 'No member of a genetic dualism or other contrast should be taken as the explaining principle of the process on which the dualism or contrast rests'; the only solution of a dualism is 'an experience in which the dualism is actually outlived.' *Discussions: The Sexual Element in Sensibility (pp. 61-67):* W. I. THOMAS. — The sensitiveness of an individual to the way in which others regard him can not have arisen from the instincts connected with food-getting and competition, but must come from the sexual instinct. *Dr. Morton Prince and Panpsychism (pp. 67-69):* C. A. STRONG. — A recognition of Dr. Prince's contributions to the development of this view.

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and Physical Exhaustion*. Science Series, No. 12. New York:
Putnam. 1904. xiv + 334 p. 12mo. \$1.50.
- Nahlowky, J. W. *Allgemeine Ethik, mit Bezugnahme auf die realen
Lebensverhältnisse*. Leipzig: Veit & Comp. 1903. 277 p. 8vo. 3 m.
- Pfister, Oskar. *Die Willensfreiheit*. Berlin: Georg Reimer. 1904.
xii + 405 p. 8vo. 6 m.
- Sneath, E. H. *Philosophy in Poetry: A Study of Sir John Davies's
Poem, 'Nosce Teipsum.'* New York: Scribners. 1903. viii + 319 p.
12mo. \$1.40.

NOTES AND NEWS

DR. DAVID DUNCAN, having been entrusted by the late Mr. Herbert Spencer with the writing of his biography, will be obliged to persons who may possess letters from him of interest if they will lend them for the purpose of such biography. All letters addressed to Dr. Duncan, care of H. R. Tedder, Esq., Secretary, The Athenaeum, Pall-mall, London, S. W., will be carefully preserved and returned in due course to their owners.

THE University of Cambridge has issued, as a guide to students, a pamphlet on 'Advanced Study and Research' in the university. The pamphlet exhibits the conditions of admission of advanced students, the regulations governing their studies, and a list of courses offered. Under the head of 'Moral, Mental and Political Sciences' the following philosophical courses are noted: Professor W. R. Sorley, Ethics; Professor J. Ward, Metaphysics, Psychology; Dr. J. N. Keynes, Formal and Inductive Logic; Mr. W. E. Johnson, Psychology, Logic; Mr. W. H. R. Rivers, Experimental Psychology; Mr. T. W. Levin, Logic, Metaphysics; Dr. J. M. E. McTaggart, History of Philosophy; Mr. G. E. Moore, Modern Moral Philosophy.

PROFESSOR EDUARD ZELLER, the distinguished scholar and philosopher, and the author of 'The Philosophy of the Greeks,' and of 'The History of German Philosophy since Leibnitz,' celebrated his 90th birthday on January 22. As we learn from the London *Times* the Emperor William presented him with a signed portrait accompanied by the following autograph letter:—

"My dear Professor Zeller,—On this day, on which you can look back upon 90 years of a life of activity crowned with success, I associate myself in spirit with the representatives and disciples of German learning in offering you my sincere congratulations and good wishes on the completion of this significant age of your life's journey. My thoughts

and wishes, however, are addressed not only to the great philosopher of whom German learning will be proud for all time, but also to one who stood in such close relations to my late parents. It affords me heartfelt pleasure that I have been able to bequeath to posterity your bust carved by a master hand and erected upon an historic site in the capital of the Empire beside the statues of my lamented parents. My one regret has been that you yourself were unable to be present at the imposing ceremony of the unveiling. Please accept the enclosed portrait in memory of to-day, and when you look at it remember that to hear of your wellbeing will at all times continue to give particular pleasure to your grateful King.—WILLIAM I. R.”

PROFESSOR EMIL KRAEPELIN, of Munich, well known for his applications of exact psychological methods in psychiatry, will spend some time in the Dutch East Indies studying insanity among the natives.

A CONGRESS for Experimental Psychology will be held at Giessen on April 18, 19 and 20. In addition to papers and demonstrations, there will be an exhibition of psychological apparatus.

THE Society for Psychical Research held its annual meeting in London on January 29, when Sir Oliver Lodge resigned the presidency to Professor F. W. Barrett, who made an inaugural address. It was announced that the society has 832 members, while the American branch has 530 members. The sum of \$30,000 had been collected to endow a research scholarship.

DR. TOULOUSE, chief physician of the asylum of Villejuif and director of the Laboratory of Experimental Psychology at the Paris Ecole des Hautes Etudes, has become editor of the *Revue scientifique*, which for forty years has been the leading French weekly scientific journal.

PROFESSOR JOSIAH ROYCE completed on February 15, a course of five lectures on the ‘Comparative Study of Scientific Concepts,’ at Columbia University.

AT the College of the City of New York, Profeser Ludwig Friedburg, of the Department of Chemistry, is delivering a course of lectures to graduate students and visitors, on questions connected with the theories of chemistry and the philosophy of science.

MR. WILLIAM HARPER DAVIS, fellow in psychology in Columbia University, has been appointed instructor in philosophy in Lehigh University.

THE JOURNAL OF PHILOSOPHY

PSYCHOLOGY AND SCIENTIFIC METHODS

THE RELATION OF THE SCIENCE OF RELIGION TO THE TRUTH OF RELIGIOUS BELIEF

THE vindication of the truth of religion, and the history of religion, are of course, in our ordinary way of thinking, two different things. The attempt to deal with the first of these I should prefer to call the philosophy of religion, which thus would be distinguished from religion as an historical science. It is, no doubt, possible to hold that truth has no meaning except in terms of historical survival; but this view I shall not stop to dispute. Assuming the ordinary distinction, I wish to consider one point merely—the question in what sense the validity of religion should be regarded as necessarily affected by an historical investigation into its origins.

There is a prevalent tendency of thought which would have a short answer to this question. If it can be shown that religion has had a certain natural history, that its varying expressions can be traced back to the workings of undisciplined minds in reaction upon the unknown forces of the world about them, that it has its root in ancestor worship, or ghost-seeing, or fetichism, then we need, it is held, no longer bother about its credibility. It is discredited at once by its ancestry. And there is, without doubt, some force in the contention. It is not common sense to say that the question of origin is wholly irrelevant. Any man will instinctively feel some loss of confidence, if he can be shown that a developed belief rests historically upon foundations which, in the light of present knowledge, are illusory, and due to erroneous assumptions. There is need, therefore, of examining a little more closely the nature of the connection, if the prejudice is to be overcome which recent anthropological investigations have undoubtedly created in many minds against the validity of the religious consciousness.

Whatever definition we may finally give to religion, there are two aspects which every religion would appear to possess. It is both a religious feeling and a theological formulation. The last phrase, in particular, may seem too ambitious a one to apply to many religions;

but it represents an essential fact. No religion, in other words, is mere blind feeling. It always attaches itself to some object, to some way of looking at the world which can be put in intellectual terms. On the other hand, no real religion is mere theology. It may sometimes approach to this. But when it does so, at least it will be found to have grown out of what at one time was an actual religious feeling. And if it ever does lose entirely the feeling attitude towards its doctrinal belief, we should be justified in denying that we have a religion any longer, and in calling it mere philosophy or dogma.

Now to put the matter briefly, the difficulty in reconciling the truth of religion with our knowledge of its historical development has been due in part to the identification of religion with its theology. On such a basis it is not difficult to find grounds for the conclusion that the error in religion so far outweighs the truth as practically to condemn it as an historical phenomenon. The task of finding a core of truth in early religions, or an identity of belief reaching through the course of development, which would justify a preceding stage to a later one, might well appear hopeless. And even if some slight and abstract remnant of identical belief should be discovered, we should not be much better off. Intellectually, one is justified not by the fact that he has chanced to hit upon a bit of truth, but by the correctness of the reasoning through which this has been reached. A truth based on bad arguments is as good as no truth at all. Now at least it can hardly be held that there is an element of truth in earlier forms of religion which men were logically justified in holding, on our present basis of knowledge, and for which they could bring reasons that would not to-day be considered wholly misleading and false. And so, while it might possibly be granted that religious belief, in its very latest and most highly rationalized form, is capable of being intellectually justified, this would at best only be done at the expense of its connection with historical religions. It would be a wholly new thing, with no roots in the past. As opposed to it all early religions would stand as merely false and mistaken; the validity of religion as an historical phenomenon would be denied. If, then, religion is to be judged by the truth and adequacy of its intellectual formulations, its beginnings are laid in error; and there is seemingly no basis for a progressive development which shall gradually attain to truth. The natural impression which the history of religion will make upon us is inconsistent with the supposition that it has real validity.

But now if we turn to the other side and find religion to consist, not first of all in a theology, but in a need of life or of feeling, the difficulty is sensibly weakened. From this standpoint what is back of religion is always a sort of practical and emotional attitude

towards the universe. This necessarily attempts to find for itself a foundation in belief. But the fact that a particular religious belief is, in the light of modern knowledge, untenable, does not at once discredit the whole religious phenomenon. That belief may be wholly inadequate. It may have been reached by intellectual processes which will not bear a moment's scrutiny. And yet it may stand for a real demand. Because religion does not go back to an intellectual process primarily, but to an emotional postulate, the fact that we find the belief false is still consistent with the possibility of there being an essential truth involved. As religion is not identical with the belief, the removal of it does not necessarily invalidate religion. This fundamental postulate may be justified, and may justify its rational foundation when that finally is attained, even though the first interpretation of it be quite mistaken. There is still the possibility of finding in the different and developing expressions of religion a core of truth. This core will not, indeed, give the final statement of religion; nor will it be represented by a definite belief or group of beliefs. It will rather be a working principle, essentially valid under all its varying and even contradictory expressions.

I can not attempt to justify here the validity of this conception of the grounds of belief. I shall only go on to consider a little more concretely the nature of historical religion, in order to show the relevancy of the statements just made. What, then, are the characteristics of the religious attitude? I think it will appear, in the first place, that religion involves a belief in some reality which is possessed of sufficient power or dignity to inspire respectful consideration, if not awe. This power may be regarded as personally wielded; this it commonly is. It may take a form which has to be put in terms of fate, or of logical necessity, like the God of Spinoza. But in any case the worshipper feels himself in the presence of that which is somehow at the center of things, at the helm, with a character such as the possession of power implies.

Furthermore, the being who is thus endowed always carries with it a certain flavor of mysteriousness—the basis of the religious awe. We may see power in objects, or in our fellow men; but that does not make our attitude towards it necessarily a religious one. If we can grasp it wholly, see into and around it, understand how it is exercised and what are its limits, we cease to stand in the religious relationship to it. The source of this opaqueness and mystery may be varying. It may be due to sheer ignorance at the one extreme, or to an awed sense of perfect goodness and holiness lying beyond our own powers of attainment. It includes the mystery of magic, and the mystery of godliness. But it has to be present, for one reason or another. And this variety of causes is one source of the differ-

ence in the objects to which religion attaches itself. The power which appeals to some men as mysterious is to others an open book. The priest who is in the secret of the thaumaturgy can scarcely be expected to have the religious feeling of him who worships from a distance. The modern man of science will find it difficult to put himself in the place of the uneducated devotee of the supernatural which he sees all about him in the world of nature. The frequenter of the court can hardly have much temptation to yield to the sense of that divinity which doth hedge a king, and which is indistinguishable at times from a genuinely religious spirit. The deification of rulers is, indeed, a frequent phenomenon of religion.

There is a third element of the religious consciousness which is implied in those already mentioned. This power would have no meaning for man, except as it stood in some practical relation to him. I am using 'practical' in the widest sense. But in this sense the statement is self-evident. We never should take the trouble to recognize that which had no possible bearing on the demands of our own nature. The further question is, therefore: How are we to state this relation? And in the most generalized form I think it would stand something in this way: God represents that power in the world, not wholly interpretable by us, and so striking us with some measure of awe, on whom depends such part of the attainment of the valuable ends of life as we feel lies outside the scope of our own unaided powers. God is the ultimate demand we make upon the universe, in the interests of our own complete living. He is the final conservation and guarantee of the values of life, in so far as they do not depend upon ourselves, or on those beings with which we consider ourselves so familiarly acquainted that we feel in a way master of their behavior, intellectually, if not practically.

I think that such a definition will include the great variety of expressions which the religious impulse has taken. For the chief occasion of this variety lies in the great range which the values of life cover. When man is simply on the plane of physical needs, then God necessarily takes the form of an instrument to be utilized in meeting the exigencies of the natural life. He is a fetish, a helper or protector to whom to appeal, a being whom magic can mysteriously summon to the worshipper's aid, and whose mysterious powers may be expected to work almost any needed miracle. Or, on the other hand, he may arouse primarily the emotion of fear, because the good of life calls also for an avoidance of surrounding dangers; and the more these dangers press, the more man is conscious of the forces which lie beyond his direct control, and of the need of warding off their power for harm. And since the demands of the physical life are always with us, it is not strange that throughout

the history of religion the thought of God as the dispenser of temporal blessings, or as a possible source of evils to be propitiated and his wrath averted, should have maintained itself persistently.

But as man rises out of the limitations of his more primitive ends, other values more and more become significant for determining the conception of God. In particular do ethical and social values begin to stand as the fundamental ones. These demands, again, take many different forms, and are interpreted in many different ways. To the one whose interests are in the realm of practical social good, and who has no metaphysical turn of mind, humanity may take the place of God, and become a religion. To another, personal relationships seem most significant, and personality is called for as an essential element in his conception. To the mystical temperament which is impressed most profoundly with the impermanence of the finite and the vanity of earthly things, God means the negation of all that is particular and that can be put in terms of human thought, the guarantee of the eternal peace of nothingness. Or, again, the esthetic value may rule, as in the poetic glorification of nature and beauty, which is essentially religious in its character. Or, still again, an absolute of logic may be the ground of all things, where zeal for truth represents the great value of life.

The philosophical justification of religion has, therefore, a distinct and an entirely justifiable task. Recognizing that all historical religious beliefs are the outcome of practical and emotional needs, it has to determine what conceptions will most adequately satisfy the demands of life, and the facts of experience, in their completeness. It can readily admit that religion has had numerous expressions which men have outgrown. Its own work is not in the least invalidated by the intellectual blunders which have grown up in the history of religious thought. It will not, indeed, attempt to manufacture a new religion, independent of the religious experience of the race. But the way in which, most fundamentally, it will base itself upon this experience, will be in connection with the revelation which it affords of what the real needs of man's life are. It is the fault of rationalism in religion, not so much that it reconstructs religious beliefs, as that it reconstructs them without due reference to these fundamental needs. A philosophy of religion will attempt to clear up the inconsistencies in the way in which these postulates have been interpreted, rather than reject the postulates themselves, in the interests of a purely abstract intellectual statement. It will, indeed, suspect that, in the higher and more developed religions, the intellectual form is not separable in any thorough-going way from the religious need lying back of it. It will naturally expect to find the development of religion more and more in the direction of a substan-

tial truth of doctrine. But the truth which it tries to justify will be an inclusive truth, not any irreducible minimum of agreement.

The science of religion, on the other hand, has no necessary connection with the truth of the beliefs which it studies. It will be concerned simply, on the basis of this same general conception of the religious phenomenon, to investigate the details of its varying expression. It will hardly attempt the impossible task of reducing all religion to a single primitive type. As men have many wants, and many ways of interpreting each of them, it is to be expected that, under different conditions, there will be different religious expressions. Fetichism, ancestor worship, nature worship and many other forms, are to be recognized, some of them perhaps equally primitive. The history of religion will find its task in showing under what conditions these originated—what social and individual interests they served, and what in the environment led to the special form they assumed. And it can do so, unhampered by the question whether or not religion will be discredited by its results. For religion is simply the recognition that life has values, and the demand that the world shall be so conceived as to give a basis and guarantee for these values. Such a postulate can be disputed only by a philosophy, not by a history of religion. That the earlier forms to which the postulate gives rise are inadequate, no more discredits the postulate itself, than the vagaries of alchemy discredit the science of chemistry, and the postulate of order and law in nature.

A. K. ROGERS.

BUTLER COLLEGE.

THE CONCEPT OF CONSCIOUSNESS

THERE is, I believe, no term in our philosophical vocabulary about which hovers more persistent ambiguity than about the term 'consciousness'; and there is no one of our concepts leading so inevitably and often to *petitio principii* in argument as that for which this term stands.

I. The common-sense view of consciousness is distinctively from a third person's standpoint. It is unreflective and unanalytical,—as it should be. We learn in our physiologies that the brain is the 'seat' of consciousness, and taking this figure to mean that the mind is somehow enclosed within the brain, we accept the solution as sufficient unto our need. If we stop to think what consciousness itself may be like, we are apt to imagine a pallid vapor hovering as a halo about the head or permeating the pores of the brain. If we enquire more narrowly concerning the nature of its content, we dream vaguely of thoughts and feelings and diaphanous images, and

are satisfied. Should any one suggest that the things we see and feel and touch—things of sensation and perception—are also but stuff of dreams, at first we scoff, but as the argument from the machinery of sense is pushed home, gradually we yield,—for it never occurs to us to question the premise that consciousness is confined within the skull, which granting, the argument is invulnerable. Nevertheless, common-sense does not really give up. Forced to the wall, it is willing to admit that your consciousness, or *A*'s, or *B*'s, is shut up within itself, unable to know anything but inflowing sensations; it is even willing to concede so much for its own consciousness conceived as like yours or *A*'s or *B*'s; but it never really believes that the object of its perceptions, the world of fact, is only a shadow-world locked fast in the brain-case. It is not in the nature of things that it can do so.

II. The view of consciousness current in the psychologies is not very different from that of common sense. Consciousness may be defined as the sum of one's mental states, but such definition is merely convenient evasion. What the psychologist has in mind is a complex of perceptions, emotions, cognitions, volitions, etc.,—all more or less moony in texture—which he conceives as the psychical correlates of neural action. His conception is still, like that of the common man, from a third person's point of view. The psychologist is the observer, perceiving and describing both the physical fact and its psychical correlate—that is, he can study *A*'s or *B*'s brain and *A*'s or *B*'s psychical states without loss of personal dignity or feeling of incongruity. Even in his analytical moments, when nipping to pieces his own consciousness, resolving it into kinesthetic feelings or noetic diatheses, he is yet other than his prey; for it is not his consciousness as his that he is dissecting, but as *A*'s or *B*'s, and it is always to *A* or *B* that he tacitly refers the elements of experience which he has been at pains to distinguish from the reality vouchsafed him. It is, then, *A*'s or *B*'s world which is made up of complexes of theoretical psychical elements that are correlated to physical bodies and brains which *A* and *B* may never directly know, though the psychologist is somehow cognizant of them.

III. Useful as the psychologist's position may be as a *modus operandi* in his own science, it can only result in irrationality when carried over into metaphysics. He leaves us with two main propositions: (1) That either literally or figuratively consciousness is bounded by the brain; (2) that the apparatus of sense is merely a sort of strainer through which more or less in the way of sensations and impressions percolates to the consciousness within. Now these propositions have been used by the idealist as prop and proof for his idealism. We can have immediate experience only of sensations,

he says; they furnish all that we know really and at first hand; the apparatus of sense is the proof, and if any further support were needed, the fact of an appreciable lapse of time between the application of the stimulus to the sense-organ and the advent of sensation in consciousness is final; *ergo*, we can know nothing but conscious states, and everything must be consciousness. The amazing thing about this argument is that any one could fail to see that it is based upon tacit assumption of knowledge of that very extra-conscious world the possible existence of which it is so strenuous to deny. Whether the external conditions of a consciousness are physical or psychical matters not; so long as they are assumed to be antecedent to that consciousness, they can not be said to exist within it, nor, on the psychologist's premises, can they possibly ever be known.

Impossible as such reasoning is, it at least represents an effort to escape the worse incongruity of materialistic parallelism. The crass inconsistency of this position results from its uncritical transference of the psychologist's working hypothesis into metaphysics. Parallelism, as I have said, is always from a third person's point of view, assuming concomitant apprehension of mind and brain. In the effort to be logical, the metaphysical parallelist represents the mental world, the complexus of strainings, as more or less a counterpart of the real physical universe. Generally he enriches one at the expense of the other, but always he tries to keep two worlds and always he bridges them, as he must by some degree of qualitative similarity. As a matter of fact, his whole position is fanciful; for on the premises which he accepts—the premises which affirm that all we know is emaciated or exaggerated reduplication of the physical world—he himself has no possible right to any other position than that of solipsism or agnosticism. So far as his theory of the world is concerned, it is constructed in defiance of his theory of knowledge, never in accordance with it.

IV. It has long been plain, I think, that the tack followed along the line of the physiological argument results in a sorry course and a loss of wind for all the types of thought involved. No matter to what degree of refinement it is carried, the sundering of the physical and psychical in sense-perception always ends in absurdities. And this is inevitable, for the psychologist has furnished us with a disjunction which, if it be real, can not possibly be known to be real, while if we assume it as a premise it is brazen contradiction to try to heal it in our conclusion. The only reason that the argument ever seems plausible is that it is always concerned with *A*'s or *B*'s consciousness, which we can well imagine to have no immediate contact with the real world; it is an invisible, balloon-like inflation, anchored somehow or other to *A*'s or *B*'s brain, but in no wise com-

parable to the brain as an element in reality. To be sure, we can imagine our own consciousness as of a sort with *A*'s or *B*'s, but we do this only by hypostatization—by conceiving one's self as some person *X*, and the consciousness as *X*'s consciousness. Even then reality, the reality that we know, is mostly squeezed out and left behind, so that *X*'s reality is as vapory and uncertain as the rest. The position is essentially an absurd one. We try to remain the dignitary who banishes and at the same time the unfortunate who is banished from the real world, to get out of and yet remain in the physical universe, in brief, to swallow a contradiction in the approved Hegelian style,—and it sticks in the throat.

V. Abandoning this attempt and turning to other conceptions, the likeliest youngling to be found is neo-Kantian 'experience.' We needed to get rid of the old notion of *a* consciousness as an atomic attribute of a man and to substitute some fresher and more comprehensive term. Experience means just the as yet unanalyzed and unclassified facts and happenings encountered in the course of a natural human life. When I say unanalyzed and unclassified I do not intend these expressions in their strictest sense, for to a certain degree experience comes to us as a result of analysis and classification. It exists already highly organized, and the history of evolution is but a history of the analytic development. Certain categories of our thought are born in us, while the so-called metaphysic of common-sense, even the so-called simple facts of science, are complexes of very highly generalized notions which are in the air, as we say, from childhood upwards. In metaphysics we are all to the manner born and our dower is a way of thought. It is the business of the metaphysician to pare away all such preconceptions—at least, all that he can rid himself of—so that in what is left as residue he may perceive the brute matter of experience, the stuff of reality, out of which the true world is to be constructed. Experience I take to denote that simple qualitative content of given reality, not yet to be described either as consciousness or as physical being, but only as the capital invested in our world-building project.

Experience, in this sense, is used as the *summum genus* of reality. It might well be made convertible with 'final seeming,' since ultimately we must define everything in terms of its final seeming for us. But it ought not to be used interchangeably with 'consciousness'; that would be to obliterate all distinction between the conscious and the unconscious or non-conscious. No doubt 'final seeming' is to be made intelligible only by reference to consciousness, but that does not mean that within the seeming, within experience, we do not discriminate conscious from non-conscious elements, nor does it warrant, as some idealists would have us believe, the infer-

ence that all reality must be conscious. Consciousness appears within reality; we may properly discriminate conscious and non-conscious elements of it, and, difficult as their definition may be, we are surely warranted in designating certain life histories as individual consciousnesses. It is not in my mind that consciousness can be actually lifted out of reality, excerpted from the world, leaving therein a residuum of experience; for such residuum must always be analytical, never real. Perhaps the best we can do is to analyze reality as if it were composite or atomic in structure, false as such analysis must be, but if we do so it is certain that our analysis will yield us elements which it is quite meaningless to call conscious.

But in naming the *summum genus* of reality 'experience' or 'final seeming,' I am not establishing a premise to an argument; this should be understood. All that such designation expresses is a point of view which, if not accepted, can not be argued for; though it would seem to be only a matter of understanding whether or not it will be accepted. The point of view is a kind of phenomenalism: not of the idealistic sort in which all phenomena are phenomena for consciousness; nor in the metaphysical sense which contrasts phenomena with noumena, or conceives them as phenomena of some subject; nor yet quite in the scientific sense in which we speak of phenomena of nature—although this is very nearly what I mean, and would be precisely that meaning were it not for the positivistic turn which the word phenomenon takes for science, and which, as implying a degree of metaphysical organization, ought to be excluded from the connotation of final seeming. Perhaps most exactly the meaning I have in mind is that succession of bare facts or qualities which Mr. Bradley calls the world of appearances and which is properly the sum of what we can include under the concept of knowable. Experience thus comprehends not only what we call physical qualities—that is to say, certain of the sensible qualities of things—but all that we call mental as well—thoughts, feelings, emotions and volitions; and it comprehends them without distinguishing in them a physical from a psychical, a conscious from an unconscious, but just for what value they may have in final seeming for us as knowing them.

VI. There are three acceptations of the phenomenalism outlined. Two are idealistic and one positivistic.

Of the idealistic views, a moment for the dialectical. In the hands of Hegelians who, like Bradley, teach a doctrine of transmutation, Hegelianism ceases to be phenomenalistic, and it may be that the whole Hegelian doctrine of the Absolute is opposed to this interpretation. Nevertheless, the rejection of the Kantian noumena left Hegel in the midst of phenomenalism, and it has been the

main effort of his school to derive the essence of reality from the given rather than from aught underlying it. But invariably starting with the conception of experience as identical with conscious experience, their conclusion is foreordained, and all have taken to that *petitio principii* heretofore indicated.

The empirical idealistic view is best represented by Professor James and his 'stream of consciousness.' This view is indubitably of value to a psychology which aims to avoid metaphysical intrusions, yet sometimes one can but wish that the 'stream of consciousness' had never been invented. It could hardly have arisen except in connection with a parallelistic, psychophysical view; and in metaphysics it is certainly harmful. The reason is twofold: (1) it proceeds upon the tacit assumption, already criticized, that both the stream of reality and the distinguished stream of consciousness can be known, at once held together and separate; and (2) the very notion of a stream of consciousness seems to imply an objective totality or continuum which is the one notion most gingerly to be touched when we attempt metaphysical foundations; for if we are sure of anything it is that qualities or facts pass utterly away, wherefore it is idle to seek for the persistence of qualitative identities when all that is possible is the persistence, in its organic unity, of a thing defined in terms of its own evolution.

For the third type of phenomenalism, the positivistic, the clearest and most characteristic conception is perhaps that of Professor Mach. It is not often that a scientist understands himself so well or so accurately delimits the province of his work. In the later edition of '*Die Analyse der Empfindungen*' Professor Mach expresses the conviction that the dualism between the psychical and the physical is quite artificial. The data of physical science are not in reality abstractly severed from sensation; rather they are expressions of definite and regular interrelations of sensible elements. Hence, in last resort, the data of physics and psychology are the same; their only difference is in the point of departure, in the kind of phenomenal interrelation studied. The elementary compost of each science, of all the sciences, is to be found in sense-presentations; by analyses of these each science obtains certain simple sensations, qualities or relations, which form its own particular data.

This view does not exclude mechanics, not the most comprehensive cosmical machinery; but it does make the mechanical description no longer a metaphysical, but only a fact description, and it leaves room for more than one type of world-delineation,—the hint, of a science of physics and a science of psychology describing identical data in different tongues, sufficiently affirms this. No one scientific description is capable of measuring the whole of any fact or truth. The

tendency since Locke has been for science, or rather, metaphysical mechanics, to take as much of the world as possible out of the realm of mind; for metaphysics, in the idealistic school, the tendency has been to draw the whole world into the mind; now that the process is about complete on both sides, it appears that the world outside and the world inside have suddenly coalesced and become one—which can only be because there never was any outside or inside at all; the spells and incantations were all in vain.

VII. There are many questions that might be considered in connection with the view set forth, but I will stop for only one. Granted, it may be said, that experience, or final seeming, is the *summum genus* of reality, and that consciousness arises within it, yet all our knowledge is manifestly conscious experience and all our reality is perforce reality for knowledge; how then are we to avoid concluding that all reality and all experience is conscious?

This argument brings up the whole question of knower and known, perception and thing perceived, not here to be entered into, but there is one fact that might give us pause ere we too hastily embrace any conclusion: we are none of us solipsists; we believe that we know things and beings existing apart from ourselves; we believe that our knowledge means more than it is, that it stands for something beyond its immediate content. And if this is true, if there exists something which is not in our knowledge, something which is different from the knowledge of it, then that something is not dependent upon our consciousness for its existence. It may be like our consciousness in kind, or like some element of it, by why needs be? The Kanto-Hegelian movement affirms the necessity; but by reason, I believe, of a confusion of the meanings of consciousness and experience. Certainly if we consult the final seemings of things for knowledge (and what else can we consult?), we seem to find certain realities wholly inanimate and quite unconscious; and I can see no more reason for not admitting the existence of their unconscious quality than for not admitting the existence of other consciousnesses—yours or A's or B's. Of course these other existences are bound to be conceived as like what we experience, but we assuredly have experience of things inanimate—bricks and books—and for aught we know the universe may be mainly built of bricks and books. If the idealist persists in calling this consciousness, let it at least be clearly understood what he is designating by the term. We want no ambiguous double-dealings or shufflings in of extraneous mentality.

HARTLEY BURR ALEXANDER.

DISCUSSION

A DETERMINISTIC ANALYSIS OF FREE WILL

IT is a philosophical commonplace that determinism does not logically involve fatalism. Determinism is the doctrine that our acts are the result of our natures; fatalism is the illogical inference that it is therefore useless to will, that we may as well be passive and let our natures work themselves out. This amounts to saying that different causes will produce the same effect; that our acts without the willing would be the same as with it. Fatalism can hardly be stated without coming in conflict with obvious facts; such as that men *have* accomplished results by willing, even to the point of altering their natures. Now, determinism would be a singular theory if it were not capable of giving at least a plausible account of these facts. And what applies to them applies also to choice, and to the consciousness of freedom which accompanies choice. Determinism should be capable of giving an account of choice which makes it real; it should be capable of giving an account of freedom which makes it a fact and not a fiction. Is a deterministic analysis of freedom conceivable which should explain it without explaining it away?

The analysis I shall give was suggested to me by reading President Hadley's little book on 'Freedom and Responsibility.'¹ The book is in the main a discussion of liberty, political, industrial, and social, and of the spirit of order, respect for law, and devotion to the common good which must go with liberty if it is not to involve a loosening of the bands of society. From the workings of our system of government, from facts about the early development of institutions as mankind advanced out of savagery, from economic history, and from our recent experiences with strikes and 'trusts,' illustrations are drawn, all showing that liberty involves self-restraint as its necessary correlative. These matters are discussed in such a broad philosophic spirit, with such a signal power of penetrating to the essential and such a robust soundness of judgment, that philosophers can but listen with respect when the author touches on a point belonging more immediately to their province.

Freedom of will might seem to be a very different thing from freedom in the political sense. But Dr. Hadley's way of looking at free will is such as to bring them together. He regards it as a legal

¹'The Relations between Freedom and Responsibility in the Evolution of Democratic Government,' by Arthur T. Hadley, president of Yale University. New York, Charles Scribner's Sons, 1903, pp. 175.

institution, designed to promote socially useful conduct on the part of the individual and serve as a basis for responsibility. 'To save its sense of justice while imposing physical penalties and preaching moral ones, society asserts the existence of . . . choice and of the responsibility which goes with it. . . . From the standpoint of modern science this theory is little short of an absurdity. From the standpoint of modern morals, it is little short of a necessity' (p. 70). Historically, 'it seems quite clear that the teaching and acceptance of free will has gone hand in hand with the development of self-control and sense of justice. This historical explanation of the idea of free will seems more satisfactory than the psychological explanation' which sees in it 'an inference which we draw from the fact of our own mental uncertainty' (pp. 70, 71). In short, the doctrine seems to be that we are not free, but that society assures us that we are, and by so doing secures from us the sort of conduct that is necessary to hold it together. Free will is an indispensable legal fiction.²

There are two parts to this theory: the social or legal character of free will, and its fictitiousness. As regards the former, it appears to me that Dr. Hadley has rendered philosophers a service by directing their attention to the historical point of view. Where metaphysical subtleties have accumulated, it may prove enlightening to consider a matter like this in its practical and social relations. Obviously some social purpose is served by the preaching of free will. The reminders that we are free which society so freely administers to us tend in some way to improve our conduct. That they serve merely to quiet society's uneasy conscience in visiting punishment upon the transgressor, is a suggestion that may be dismissed. How do they accomplish this end? Is it by making us more free, or by making us more good? It is not easy to see how we can be made better by being reminded that we are free to do ill. On the other hand, it is evident that society would not so sedulously preach freedom if the preaching did not in some way make us better. The assurance that we are free, joined with the reminder that we *ought* to do so and so, obviously helps to make us do it. But how does it help, unless by making us free? And, if it makes us free, can the freedom be a fiction?

It may be questioned whether the device, in a book preaching responsibility, of representing the freedom on which responsibility is based as a fiction, is an altogether happy one. The person

²Dr. Hadley recoils somewhat from using the word 'fiction'—see p. 48: 'Call it a legal fiction, if you please'—but the quotations I have given show that it correctly expresses his view. Compare the refined scruple which leads him to speak of freedom as 'little short' of an absurdity.

preached to might justly reply: If I am not free in the sense in which the state treats me as such, then I disclaim the responsibility. Of course the persons whom Dr. Hadley's book will actually reach are of an order of moral excellence not to be disturbed by his doctrine; their dutifulness in waiving the right to make this reply will be equaled only by their inconsequence.

At the risk of surprising Dr. Hadley, I am going to charge him with being an indeterminist. The only freedom of which he is able to speak is of the indeterministic kind. He is like an atheist who believes that there is no God, but that there ought to be: a very fundamental kind of theism. But the consciousness of freedom is an obvious psychological fact, and the freedom which is its object can hardly be a fiction. The true determinist is he who holds this freedom to be a fact, and gives an analysis of it. This I will now attempt to do.

Freedom is always *from something*; and our first duty is to determine what it is that we are free from. I think there can be no doubt that what we are free from is the necessity of performing a certain act, of which we happen to be thinking. The opposite of freedom, here, is the automatic sequence of the act upon the thought of it; as where we feel ourselves fatally drawn towards an act which we know to be bad.

The next question is, what it is that makes us free from this necessity? I answer that it is the thought of another act, or another possibility. For freedom there must be the thought of two acts, or two possibilities; freedom arises, essentially, in deliberation; if there be the thought of but one act or possibility, the reaction to that thought necessarily occurs automatically. I may consider whether to do or not to do, and, if so, there is deliberation, as much as when I balance between two acts; but if I recoil from *both* alternatives and simply do not decide, the not deciding is an automatic response.

The consciousness of freedom, then, arises when alternative courses of action are weighed against each other. Neither is strong enough to draw us automatically in its direction; if it were, there would be no deliberation; and only in deliberation can there be a sense of freedom. We are free to choose either course; that is, with reference to neither are we forcibly led captive by the other. This is of course more conspicuously true of the worse course, that recommended by physical impulses; we are free with reference to it, that is, we are still able to entertain the possibility of the other. But it is also true as respects the better course: we are free to choose the worse. Thus there is very much of an equilibrium. (This is the 'indifference' of the *liberum arbitrium*.)

Those determinists are not right, then, who represent freedom as merely emancipation from the lower impulses. We are also, in a sense, emancipated from the higher; we are free with reference to *both* courses of action, but it is the thought of each in turn³ which renders us free from the other. Freedom is the opposite of bondage. The bondage is to any thought of action that determines its act automatically. We are free as respects *each* course of action, but not as respects *both*, or *all*. To be free as respects *all* courses would be not to think.

If we consider the matter from the neurological point of view, we shall, I think, see the correctness of this. Since 'all consciousness leads to action,' the thought of an act alone in the mind would produce its act automatically; but where two thoughts of action are present together, they inhibit each other, and one must conquer by its weight, or by the considerations which it is able to draw to its support. But, before this happens, there is equilibrium, and the agent is free as respects each. He is free as respects each just so far as he actually *is* free and no farther; so that one man may be more free as respects the lower motives and another more free as respects the higher. Freedom, in a word, is equilibrium so far as it exists.⁴

Thus, the more evenly balanced the motives, the freer a man is; that is, the less gross and palpable the consideration needed to tip the scale; so that altruistic feelings and thoughts of social utility have a chance to determine conduct.

With this analysis of freedom in mind, let us turn again to Dr. Hadley's suggestion that the consciousness of freedom is to be explained historically.

Society, we have seen, preaches freedom. With what motive? Why is free will held to be so important a doctrine? In what way does the preaching of free will contribute to produce socially useful conduct?

Let us ask, first, just what kind of freedom it is that is preached? It is, I think, predominantly, freedom from the bad, freedom to do good. Society reminds a man that he is not predetermined by his nature to choose the bad.⁵ For this is what social utility requires to be emphasized. Of course the converse necessarily implied is

³Not in itself necessarily, but as supported by its motives.

⁴A witty friend of mine observes that, if the equilibrium were perfect, we should be in the position of Buridan's ass—so free that we couldn't do anything. Precisely. Nor is the phenomenon so rare a one as my friend appears to suppose. We are all of us Buridan's asses until some thought of good or ill to ourselves or others comes to rescue us from our predicament.

⁵This may not always be true. But, being true in the great majority of cases, the utility of the preaching is manifest.

that he is free also to choose the bad; but this is admitted only as a matter of logic, or in connection with a forewarning of punishment.

Society tells a man that he is free. Does this mean that he is free absolutely, that his actions are determined by another side of his nature from his thoughts and feelings, by a power of arbitrary choice? Not at all. It is a practical measure, designed to heighten the consciousness of independence of the lower motives, and so assist the higher in vanquishing them. The lower and the higher being so evenly matched, it becomes necessary to reinforce the higher by reminding the agent of his power to decide for them if he will. And this is a reminder which in a measure creates the power to which it refers. It is a sort of self-realizing suggestion.

Of course the operativeness of such suggestion presupposes that we have to do with a normal individual. Freedom implies the capacity to take in social considerations and to act upon them without external constraint. Hence the insane, who cannot take them in, and those who act under constraint, are released from responsibility. Society controls the normal individual by suggestion. The mental powers that fit him to be influenced by such suggestion are the basis of freedom. If a man is capable of deliberating calmly, so that social considerations have a chance to influence him, he is ready to be free.

The reminder that he is free, coming upon him at a moment when the higher and the lower motives are pretty evenly matched, has the effect of reinforcing the higher. By being made to believe that he is able to resist the lower, he is actually enabled to resist them. The assurance that he is free makes him free; the belief creates its own object. Freedom is thus a practical truth. The reminder of it was already, before it was uttered, in part true, as addressed to a being capable of deliberation and actually in a state of equilibrium; it is now, as a result of the utterance, still more true: by being added on to the higher motives, or by preparing the ground for them, it gives them greater weight, and helps to tip the scale in favor of the decision they recommend. So that its very utterance makes it true that the person is not irretrievably committed to and bound by the lower motives. Here, then, is a limited sphere in which the pragmatist doctrine of some recent writers is unquestionably true.

The reminder of freedom is not usually administered alone. It is given in company with other social suggestions, such as the thought of obligation, or the forewarning of punishment. Society says: You *can* decide for the better course; you are already *considering* doing so, in deliberating; it would not take much to tip the scale that way; and you *ought*. This *ought* tips the scale. And it is enabled to do so by the prior assurance of freedom.

A satisfactory analysis of free will should leave us as able and as willing to live well as we were before. It should involve no impoverishment of the moral life. But is not determinism a depressing view, does it not take the life out of action? If our acts are the joint product of two thoughts of action with their supporting feelings and of the social suggestions that intervene, are we not passive vessels in the hands of fate, is there any room for hope or aspiration or courageous effort?

Such, doubtless, is the common impression, an impression shared even by philosophers. But fatalism, regarded as an inference from determinism, is fallacious. The source of the fallacy lies in a false separation of the self from its nature. The fatalist imagines himself outside himself and looking on. Now, in *theorizing* about action we do in truth occupy such a position: the psychologist stands outside the consciousness of which he speaks. But in practical life, in his own actions, this is not so.

That it cannot be so, follows from the striking theorem developed by Stout in his 'Analytic Psychology,'⁶ that the objects of our thought are always other than the thoughts by which we think them. That is to say, we cannot possibly think about a thought or feeling at the moment when it exists, we cannot possibly think about the thoughts and feelings that compose our momentary consciousness. But only by so doing could we so separate ourselves from them as to occupy that assumed external position. In action, then, the theoretical, the merely onlooking attitude is a psychological impossibility.

I say to myself, as a matter of psychological theory, that the act I decide on will be determined by the thoughts and feelings that are in my mind. And I say rightly. But when I undertake to apply this insight at the moment of action, and say to myself, "Here are these thoughts and feelings in my mind, from which I feel myself to be distinct; it is they, and not I, that are determining my act," I commit a fallacy. For it is not the thoughts and feelings which are now my object that determine the act, since they are now objects, not mental states; it is the thought by which I think them and the feelings that accompany this thought, themselves both unthought of.⁷

⁶ Vol. I., pp. 42-46.

⁷ Such a false separation of the self from its nature is implied in the view that the Ego is the unity of consciousness, the mere form of consciousness emptied of all content. But this is an error. The form of consciousness is merely the permanent aspect and, as it were, framework of the Ego, which has to be filled with *some* content (the content being the varying aspect) in order to be the Ego. In a word, the form of consciousness is also the mere form of the Ego. A 'dynamic reaction of the form of consciousness upon its content'

I contrast myself, in reflection, with the motives and feelings which I feel to be influencing me; and this contrasting requires not less than three distinct moments of consciousness. At the first moment I am naïvely influenced by the feelings; at the second moment I make the feelings my object, and at the third moment I contrast the feelings with myself, which now has also become an object. But the feelings do not influence me at the second and third moments when they have become my object; they influence me at the first moment when they are a naïve part of myself.

In other words, *action is always naïve*. You can never reflect upon the thought that causes you to act, even though that thought be a reflection, or a reflection upon a reflection. It is always the last reflection, itself unreflected on, that determines the act.

The notion, then, that action takes place outside the subject, beyond its borders, involves a psychological absurdity. That is, for the agent himself, an impossible point of view. A man cannot be outside himself and yet act; he cannot be outside himself, regarding himself from without, at the moment of action. He can get outside of himself only retrospectively; what he then regards is his past self, not his present; the present self is, essentially, unregardable.⁸

We may therefore rest in perfect confidence in the pre-philosophic belief that our acts are determined by ourselves and by no other, and that as are the thoughts which we allow to occupy the selves, so will be the acts.

C. A. STRONG.

COLUMBIA UNIVERSITY.

REVIEWS AND ABSTRACTS OF LITERATURE

An Introduction to Systematic Philosophy. WALTER T. MARVIN, Ph.D., Assistant Professor of Philosophy in Western Reserve University. The Columbia University Press. 1903. Pp. xiv + 572.

The purpose of the book before us is not that of 'an historical introduction, nor of a hand-book,' 'nor does it aim to present a philosophical system,' but rather 'a series of problems and their solutions.' It is, however, manifestly intended not for advanced students, but for college classes, and from this standpoint the arrangement of topics and of problems, the references to collateral reading and the presentation may be commended. The latter is, however, rather prolix, and in the discussion of scientific theories appeal is made to the layman's rather than is therefore as impossible and absurd as a dynamic reaction of the shape of a man's nose upon its color. *Agents are concretes*. What acts is either a part or the whole of the field of consciousness, content and form combined.

⁸That is, experienced but incognizable—see 'Why the Mind has a Body,' p. 208.

to the specialist's point of view, thus sacrificing much rigidity and exactness.

Although 'not aiming to present a system,' the author nevertheless announces the main doctrine of the book to be that of 'rationalistic idealism.' "By *idealism*," he says, "I mean the doctrine that denies the existence of a *transcendent* world and that therefore limits all problems to the world of experience." The reviewer finds this statement doubly ambiguous because of the terms 'transcendent' and 'experience,' and that, according as the author would give one meaning or another to them, he must either accept solipsism, or, rejecting this, can not call this view 'idealism'; or thirdly, that he has stated only a truism. In the first case, if by 'experience' is meant conscious experience (consciousness), and this, if anything, is the author's repeated though not consistent use, and if by 'transcendent' is meant the 'contradictory opposite' of this, viz., the non-conscious, and the existence of this is denied, then the author's idealism is solipsism. This position, however, he rejects. If, however, the attempt be made to explain consciousness, which includes the result of 'thinking processes,' and it be found that this can be done only by *assuming* a 'transcendent' to exist, *i.e.*, if it can be shown (and it can) that the thinking process is itself a transcendent one and that, therefore, 'das Denken sich auf ein Transcendent bezieht,' then the author must widen the meaning of the term *experience* to include the affirmation of the transcendent's existence. This position the author himself admits later on in his statement that the only scientific psychology is a physiological one. Idealism, therefore, either does not deny the transcendent, or this position is not idealism. Thirdly, using 'experience' in this above sense as consciousness plus its implications, then, if by the transcendent is meant something beyond this 'experience,' the author's statement as to the limitation of problems is a truism.

"By rationalism," he says, "I mean that our attempt to interpret the world must presuppose premises or *a priori* truths about the world." Here, if the author means that the *necessity* of presupposing premises demonstrates or insures their truth (*a priori*) the reviewer can not agree with him. A presupposition of any kind is not assuredly true, though it may be, and the *a priori* is in no case proved (syllogistically); therefore it must be *assumed*; nor is its 'self-evidence' a proof or assurance, but rather only the 'conviction that something is undeniably true,' which conviction is, however, again no proof. All science including 'rationalistic idealism' is, therefore, dogmatic in this sense. If, then, *assuming* certain principles (concepts) we, from these, in explaining conscious states, assert a transcendent, we *may* call this rationalism (dogmatic), but not idealism.

In the 'presentation of problems and their possible solution' the book is divided into six parts, these into sections and chapters. There are also two appendixes, one offering a scheme for the history of philosophy, the other a bibliography.

Under the 'Metaphysics of Nature' 'substance and quality,' the

mechanical and atomic theories, time and space, are ably discussed, and much that is said represents very modern tendencies in physical science. It being the work of science to discover universal characteristics, and the sciences being classifiable on the basis of the degrees of the universality of their concepts, mechanics presents itself as the most universal because it deals with extension, impenetrability, location and motion. But the mere ubiquitousness of these does not disprove the objectivity also of the 'secondary qualities.' "Exceptional existence is not necessarily subjective existence." Both classes of qualities are revealed upon the same sense basis. In any case, we in treating of them make use only of abstractions, and science is justified in using the more universally occurring qualities, for they make all things comparable and systematizable. Therewith, because of this genesis, this isolation of the primary from the secondary qualities in the process of abstraction, the two coexisting in the concrete object, it is impossible to *reduce* the secondary to the primary, although the latter may serve as an index, or means of comparison, for the former. The question, fundamental for the understanding of the meaning of mechanics, which the reviewer would ask here, is: If one class can be used as an *index* for another class of qualities, then is a mere coexistence a sufficient condition for this, or must there be added to this coexistence at least a partial identity? If the latter is the case, then there is a *reduction* in the strictest sense of the word. However, there is hardly a satisfactory answer to this to be found in the literature.

The author considers the position he has taken in interpreting mechanics to be also a refutation of the 'Energetik,' but incorrectly so, we find; for the latter theory also asserts, like our author, the non-reducibility of the secondary qualities, and emphasizes the necessity of considering them, as objective, to be identical with *energies*. It also admits the indexing of one by others, as is shown by every physical equation, but it asserts that this index need *not always* be in terms of M and V , and that when it is so, it does not mean total identity.

Thus we find that chemistry can and, as a matter of fact, does stop short of doing away with (reducing) the qualitative differences of the atoms, although, for *certain* purposes, to do this remains an ideal. The author (Chaps. V. and VI.) finds, correctly, that even were such an attempt successful it would leave us with another fundamental concept, matter, having only the primary qualities, yet such a 'matter' would again be only an abstraction, *i. e.*, an isolated part and not the whole of reality.

The logical origin of the atomic theory (Chap. VI.) consists in that repeated 'division' of a qualitative whole into parts with fewer qualities, whereby the application of a law (mechanics) is further extended. Qualities are in this way 'explained by' or 'reduced to' a structure of mathematical points, but such a theory (atomic) 'is not, however, a complete description of fact'; the entity is atomic, but not merely a complex of atoms. In fact, 'to explain' means 'to abstract,' and therefore not to describe the whole.

To one well acquainted with chemistry the reviewer thinks the criticism will appear as justified, that with the author's (ultimate) atom the chemist, at least, is not greatly concerned; in fact, one might say with no atom at all, but rather only with arbitrary symbols which serve their purpose quite as well without as with a supposed reference to a structure of quantitative entities. Structural, including stereochemical, formulas do not pretend to represent real structure; they are only so much 'notation' as it were. All this, however, only because the chemist does not need to go farther in order to satisfy the '*practical* need'; if a '*theoretical* need' is concerned, then the author's standpoint is correct.

Chapter VIII. The 'conservation of energy' can mean only a relative conservation, not an absolute, because of the relativity of all measurement. But also all measurement assumes the conservation of the measuring units, so that there is no proof this way. Therefore the law must be a *priori*, or axiomatic, concludes the author. This again, in the reviewer's opinion, illustrates the *dogmatic* (though it may be critical) nature of all science, for if the law of conservation of energy is so based, then it is only *assumed* or strongly believed in as true, but is not proved. The 'pragmatic principle,' accordingly, again makes its appearance, for it can be shown by critical examination of the historical evolution of the law as meaning 'quantitative equality accompanying transformation,' that this interpretation of experimental data is made simply because 'it works better' than does the contradictory view. The absolute correctness of the first interpretation is, however, quite impossible of demonstration.

Under the caption, 'The Philosophy of Mind,' Section II., it is stated that the distinguishing characteristics of mental states are (1) non-spatiality and (2) the revelation only to the self (p. 133). The author herewith accepts implicitly a transcendent in the only valid sense of the term, viz., as meaning the non-(un)conscious. Other minds, he says, we infer by analogy, though there is no verification (he forgets that the analogy is not exact). Here again it is necessary to admit a transcendent (to mind) as a very basis for the analogy, a point the pluralistic monist quite overlooks. (Cf. C. A. Strong, 'Why the Mind Has a Body.')

Chapter XVII. Are mental causation and conservation facts? Here a comparison is made with what science accepts for the physical world, without making any exact and detailed critical examination of this.

It is stated that 'mental events are disconnected,' not continuous; and, furthermore, that physical facts must be appealed to in order to interpret and explain mental. This, for the reviewer, is undoubtedly the position taken by 'science,' and illustrates the position that, in order to get to a basis for prediction and calculation, the only basis which has a practical, a biological value for us, the regularity and uniformity necessary for this, can be secured only by *assuming* the existence of a transcendent to consciousness. The author has here placed himself squarely in this position, notwithstanding his first statement (quoted), of the non-existent transcendent. The author answers his question by saying that 'as far as conservation involves spatial relations, conscious-

ness is neither conserved nor atomic. He overlooks one argument for a mental conservation, viz., that which assumes, as does the universal parallelist either consciously or unconsciously, *ex nihilo nihil fit*, etc., as a major premise. The permanence and unity in our mental life justify us in speaking of a soul, he thinks, but this is not the permanence of conservation.

Is there a causal relation between mind and body? The author answers the question correctly, we think, in saying that the parallelist is right in asserting the fundamental difference between the two, and that the 'quantity of motion can not alter,' yet that the mental event (not motion) can and does actually coexist with the physical effect. A conscious event from this standpoint is an epiphenomenon. From it panpsychism does not follow. To prove this latter it must be shown 'that the physical correlate of consciousness is universally present in all physical action as such' (p. 290); or, 'consciousness must be shown to be conserved,' which is not yet possible. Section V. deals with cosmogony. What is the absolute beginning and purpose of things? The author answers that 'creation is not a beginning in time, but is the very act of change itself'; "each 'element of change' has a beginning and an end." Thus recognition is made of the insolubility of the problem of change, and of the occurrence of a repeated *creatio ex nihilo* and *fit ad nihilum*, and the *description* of this in so-called 'laws of causation.'

Part II. deals with the theory of knowledge, which consists in the scientific *reflection* on the interpretations found in all the sciences. In all his discussions of the questions involved the author, however, does not get beyond the traditional dogma of 'Erkenntnisstheorie' that knowledge is only consciousness, and that this latter is a *creating* (schaffende) activity; he makes, in other words, no distinction between the 'gewusst' and the 'bewusst.' Yet these are not the same.

To be sure, as he says, knowledge consists of judgments, either explicit or implicit, and the judgment interprets 'the Given' according to certain principles. The author herewith virtually admits the above criticism, in that knowledge, as implicit judgment, is not wholly consciousness, but a transcendent process. He again really recognizes the transcendent when he distinguishes the thing known and the knowledge of the thing. Fact is the basis of proof, error lies in the interpretation. (By fact he means that actually or to be possibly given in conscious experience.) But since in sense perception there is an act of interpretation implied, he admits that it is difficult (and perhaps impossible) to get at the *bare facts*. And again, he makes consciousness a creative activity, and identifies it as knowledge with that (the transcendent) to which it relates, when he says that some so-called 'facts,' *e. g.*, the past, are really inferences from the present (conscious state), but even so because they admit of a conceivable (conscious) experience. The inference, for the reviewer, is not the past, but 'bezieht sich auf das vergangene,' which, with the future as an object of possible experience, is assumed to exist independently of the inference (transcendent). Provided only it does so exist can the inference be either true or useful. Nor is it any

more correct to identify 'content' with that to which this *refers*, as the author does in saying that such 'facts,' past, present and future, make up 'the Given,' but are in the last analysis 'the content of the consciousness of the moment' (p. 370). The author himself recognizes this, saying that to state that 'the Given' is this consciousness is to rob this term of all meaning (p. 372). He therewith admits (unknowingly) that if 'consciousness' retain a meaning for us it must be that of the '*immanent*' as opposed to the *transcendent*, which must, accordingly, be assumed to exist unless solipsism be frankly admitted.

If knowledge is of relations (p. 382) (of likeness, of consistence, of laws) can we *know* objects, and is the reference to a *future* world valid? The author answers that the proof (he means confirmation) is to be sought in the *facts* as revealed to us in perception (p. 387) (yet he has said that in perception there is interpretation and in this possible *error*). The *entire* future, however, can not be proved even in this way; therefore for this there is only probability. Knowledge seems, then (Chap. XLII.), to go beyond its premises (*i. e.*, to make assumptions) and to be invalid (he should say 'may be') unless additional premises (to make it certain) can and must be granted. These premises are indicated, in his opinion, by the impossibility of a thorough-going skepticism, in so far as at least some knowledge is accepted as valid. (It may be questioned if we can find anything in this way from which as a 'premise' deductions can be made, and, secondly, if an absolute skepticism, giving a 'self-repeating series,' is not quite possible?) But the author considers that in this 'the knowableness of the world is presupposed' (p. 393), and that to knowledge must be granted those premises needed for its work. (This holds for the practical purpose of knowledge, for its biological function.) However, that even this does not give us a basis for *certain* knowledge is shown by the author's own statement that as to what these premises are philosophers differ (empiricism and rationalism). For the former, he says, the 'facts' form the full justification, for the latter not; and the empiricist in his dependence on the 'principle of regularity and uniformity' virtually admits that *some form* of rationalism must be accepted. In the reviewer's opinion, however, it is no more justified to call this rationalism, since the empiricist is himself aware that in 'depending on the principle' he therewith assumes that which is not proved, than it is to call rationalism a form of empiricism, because the former (as the author says) must accept some premises, laws, as true because self-evident; for self-evidence, we have seen, is no proof. From this it is clear that both standpoints must be either consciously (critically) or unconsciously dogmatic, defining a dogma as that premise which neither is nor can be proved.

In Chapter XLIV. we come to the specific treatment of the question, already discussed, whether or not a transcendent world, either of substance to explain change, or of noumena, exists. To be sure, the world of noumena can not be known as such if we know only (the world of) our perceptions, as it assumes, but this assumption is self-contradictory (p. 408). Quite rightly the author recognizes that the whole question

comes down to the problem 'whether or not we can *know* without having in mind some *idea* of that which we know' (p. 409), and his *answer is negative*. "We can not predicate even existence of such an absolutely unknown and unknowable transcendent (noumenal)." In criticism of this, the reviewer notes, first, that knowledge (wissen) and consciousness (perception) are not distinguished as they can and should be, and by making which distinction it can be shown that knowledge does refer or relate to (as the author has previously admitted) a transcendent in the sense of the non-conscious, its only legitimate meaning. And, second, that, if the term refer to something never yet 'thought of' or known, though discoverable in the future, and in this sense 'beyond experience,' its existence *can not be denied*, though not asserted. Thirdly, that if 'experience' is made to include a knowledge which relates to a transcendent in these first and second meanings, then it is the purest tautology to say that a transcendent beyond any possible 'experience' is absolutely unknowable. And the author uses 'transcendent' in this latter sense! What does it mean, then, for him to say that idealism denies the 'transcendent'? So does empiricism and every other theory! It is tautological also to say that we can deal only with 'the Given' if this latter means 'the perceived' and 'the known,' and wrong if it means only 'the conscious' (p. 413). Why ask, then, as to the nature of 'the Given' and if solipsism can be escaped from? Yet the author, at the cost of consistency, suddenly finds that to call 'the Given' consciousness takes all meaning from this word; such a 'highest concept' can not be differentiated, has no intension. To give it real meaning by giving it intension the reviewer finds, therefore, that the term consciousness must be differentiated from the non-(un)conscious, calling the one immanent, the other transcendent.

In fact, in Chapter XLVII., the author seems to recognize the existence of a transcendent in this sense, for knowledge is here said to imply both 'knower and known.' 'The Given' is therefore 'subject-object.' Both solipsism, which makes everything subject, and naturalism, which ignores the subject, are impossible. "Ultimate facts are *both subject and object*." "It is absurd to speak of ultimate facts as only mental." Admitted that the *fact* of knowing implies subject and object, the known *fact* is not in every case subject, but rather transcendent, to it in its existence. For it is quite as valid to assume (and in any case it is only an assumption) that consciousness (the subject), in which the results of knowing processes are presented, does not *create* the object, as that it does, and in science, in order to get uniformity and regularity, the first position has to be taken.

Neither parts III., IV. nor V., on religion, ethics and esthetics, respectively, present anything essentially new for the advanced student, though valuable for the beginner.

Part VI. forms a conclusion to all the preceding. What is to be accepted as the position of philosophy as a science? It is that of the 'very interpretation itself becoming the object of interpretation'; it is the science of all interpretation, science becoming self-conscious. (The

author might well have added that it is the scientist who is quite aware and critical of his own methods and assumptions that is the philosopher.)

Its function is, therefore, criticism, and in this respect it has for science (in general) both a theoretical and practical value. But even so, in the reviewer's opinion, it must not be forgotten that philosophy in posing as the critic of the sciences can not herself get along without the assumption of 'principles,' etc., which have not been and can not be proved. That it can do so has been the traditional error of all 'Erkenntnisstheorie' as 'queen of the sciences.' But the insight that to a certain extent different (contradictory) fundamental assumptions may be made, upon the basis of which opposed yet *internally consistent interpretations* of reality may be made (deduced), and yet which can be neither proved nor disproved (not deduced from a more general proposition), this insight will show what the origin of the different systems is, and suggest that each one has claims to correctness, and that any one is ultimately selected by the individual only because for him it is a better guide to life, or satisfies him because it is based on that which is 'self-evident' to him. In other words, the pragmatic principle in its broadest meaning as a biological element emerges as determinative even here.

In conclusion it may be said that those parts of the book which deal with the analysis of the sciences, *i. e.*, the ontology, cosmology and cosmogony, and the metaphysics of nature and of mind, together with the philosophy of religion and the esthetics, that those parts form for the reviewer the most valuable presentations of the author; while, on the other hand, issue must be taken with his 'erkenntnisstheoretische' position, as our criticism has indicated. The result is the sincere conviction that if philosophy is to make good her claims as the author stated them, she must break away from the traditional dogmas and take to new paths of reflection.

E. G. SPAULDING.

COLLEGE OF THE CITY OF NEW YORK.

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NOTES AND NEWS

THE KANT CENTENARY.

THE centenary of the death of Kant was celebrated on February 12 by the University and the town of Königsberg, in the presence of the Prussian Minister of Education, Doctor Studt, and various representatives of German academic corporations. The proceedings began with the unveiling of a memorial tablet by Doctor Studt, who delivered a message from the Emperor William, and referred in the course of an address to the services which Kant had rendered to learning and to the world. The Minister further announced that he had assigned the sum of 10,000 marks from the public resources at his disposal in support of the teachers' aid fund. The town of Königsberg has devoted a similar sum to the foundation of an annual prize for essays on philosophical subjects. On the memorial tablet which was unveiled on the wall of the Royal Castle in the Kantstrasse, is inscribed the well-known saying of Kant: 'The starry sky above me and the moral law within.' An exhibition which has been opened in connection with the celebration contains a collection of busts, portraits, prints and sketches of Kant, together with several personal relics, including his hat, gloves, walking-stick and snuff-box.—The *Königsberger Hartung'sche Zeitung* publishes a special commemorative issue, containing a contribution from Count von Bülow among others. The Imperial Chancellor expresses his desire to join in the cry of 'Back to Kant,' as the exponent of the 'philosophy of the Prussian sense of duty,' which had created Prussian greatness and German unity.—A special meeting of the Fellows of the British Academy was held in commemoration of the centenary. Doctor Shadworth Hodgson read a paper. The chair was taken by the president, Lord Reay. The Swedish Minister and Count Bernstorff were present. The German Ambassador wrote to express his regret that absence from London pre-

vented his attendance. The secretary read letters of regret from Professor Campbell Fraser, the masters of Balliol and Peterhouse, Doctor Henry Jackson and Sir R. C. Jebb, M. P.—The Philosophical Union of the University of California ‘desiring to join in the general recognition of the important services rendered to the cause of philosophy by the greatest philosopher of the modern world,’ held a special meeting on Friday evening, February 12. Professor Gayley presided, and Professor Howison delivered the commemorative address on the subject ‘Kant’s Legacy to Philosophy in Settlements and in Problems.’—The centenary was commemorated at the University of Chicago, by a meeting held under the auspices of the department of philosophy, Professor Mead presiding. The feature of the meeting was reports from different departments upon Kant’s influence in particular spheres. Doctor Foster, of the Divinity School, spoke of Kant’s influence upon theology; Doctor Moore, of the physics department, upon his scientific influence; Doctor Schultze, of the Germanic department, upon his work in esthetic criticism; Doctor Merriam, of the political science department, of his influence in that department; Doctor Dewey, of the philosophy department, upon his influence there. The variety of modes of intellectual activity represented made the meeting unusually interesting—all the more because of the unexpected and undesigned convergence of the estimates presented.—Commemorative exercises were held at the University of Alabama, at which short addresses were made by Doctor Edward F. Buchner, on the life of Kant and his influence on philosophy; by Doctor H. F. Sayre, on Kant in his relations to astronomy and physical science; by Doctor John Y. Graham, on Kant’s contribution to the theory of evolution; by Professor T. W. Palmer, on his contributions to the development of mathematics, and by Mrs. J. Y. Graham, on Kant as a factor in the literature of Germany.—At Columbia University Professor Felix Adler delivered a commemorative address on the life and philosophy of Kant.

ANNOUNCEMENT is made of the death of Sir Leslie Stephen, which occurred at his house in London on February 22. In speaking of him the New York *Evening Post* says: “To clarify thought, both in religion and letters, and to adorn all with a blameless life—these were his controlling aims, and the measure of their attainment was so great as to leave us all the poorer for his death.”

PROFESSOR WILLIAM JAMES, of Harvard, met the graduate students and instructors in philosophy of the University of Chicago, Monday evening, February 22. He spoke informally upon some points in the use of the pragmatic method, especially upon the relation of the physical and psychical, and the problem of the external world.

PROFESSOR TITCHENER’S ‘Outline of Psychology’ has been translated into Russian and Italian, and his ‘Primer of Psychology’ into Spanish. An Italian translation of the ‘Experimental Psychology’ is now in progress.

THE death is announced of Doctor Luigi Barbera, professor of philosophy at the University of Bologna.

THE JOURNAL OF PHILOSOPHY

PSYCHOLOGY AND SCIENTIFIC METHODS

A CRITICISM OF SCIENTIFIC METHOD AS APPLIED BY SOCIOLOGISTS.

IN the October-December number of *The Forum*, in an article entitled 'Sociological Questions,' Professor Giddings feels the need of first explaining "the sense in which the word 'sociological' " is used. The explanation crystallizes in two definitions, viz.: "Sociology is, in short, a study of those fundamental social facts which all other branches of social science take for granted." "Sociology is an attempt to get away from *a priori* theorizing, and to arrive at knowledge, even though the knowledge be of a modest sort, falling short of philosophy."

There are two phrases in these statements that are worth noting before passing to a discussion of the larger principle that is involved.

In the first place, from the view-point of either science or philosophy, using those terms in a liberal sense, there is no 'knowledge' which is 'of a modest sort.' Knowledge that is knowledge is neither modest nor boastful—it is simply the means, it is simply the intellectual instrument, for the furthering of our ends. It is the servant which is at once master and servant; and we fail to see the purport of this apologetic tone in defining the scope and method of sociology which stands, in the Comtean scheme, for the correlation and climax of all the sciences.

Again, and without any intention of being captious in our criticism, there can be no¹ '*arriving* at knowledge without *a priori* theorizing,' for there can be no arriving except there be a starting, and '*a priori* theorizing,' however distasteful the phrase may be, if it means anything, simply locates the initiative, it means in psychological terms the intellectual impulse to thinking, which, in order to realize itself, does go out and then return to itself by way of the fact. If the impulse is *a priori*, is blind, so likewise is the fact; they are both blind until each has been defined by the other in a dynamic

¹ Italics are ours.

situation. The one simply defines the other, and any complete intellectual act is simply the biological, the organic, method of defining them. Facts are not found ready-made in objective concreteness, nor are theories and principles spun out of *a priori* minds. Facts and theories are not objective, in the sense of existing in external unrelatedness, and do not exist as such. It is always some fact or group of facts which defines and shapes a theory, and it is always a theory which gives meaning to facts.

The failure to comprehend this essentially dynamic character of method at the outset, by sociologists, has diverted some of the leading minds that are interested in establishing the new science, as a science, from the formulation of fundamental principles to a voluminous discussion of logic under the guise of the scientific term, methodology.

Nor does the problem seem to have received any satisfactory solution. Assertions regarding the scientific method of the new science seem to have received a stereotyped place in all pretentious articles. And these assertions all have that same attitude of hostility toward the *a priori* in their reverence for the inductive and comparative and statistical methods.

Turning now to the general methodological attitude of the article which is the occasion of this writing, we find that the *a priori* method has become an *ism*, and amounts simply to 'an off-hand guess.' It is identified with 'dogmatism.' The method pleaded for is that 'scientific method which has yielded positive results in all the inductive sciences.' 'The comparative methods of the trained historian' and 'the quantitative methods of the statisticians' are to characterize the study of contemporaneous society.

In order to maintain his equilibrium in this position the author finds it necessary, at five different points in the course of his argument, to assail *a priorism* in the manner mentioned above. It strikes the tyro in sociology as exceedingly strange that the father of all science, to whom all science goes back for its initial movement, should also be the father of *a priorism*, and it does not decrease the tangle of the situation to learn that the charge of *a priorism* has been laid also at the door of one who thus asserts and reasserts his lack of confidence in that method.

Nor does it clear up the situation much when, regarding questions that are raised, the assertion is made that they 'admit of an exact statistical answer,² but the answer has not been found.'

The feeling has been expressed in scholastic circles that sociologists have not risen to their opportunity, and the writer feels that at least one of the causes of this failure can be traced on the one

² Italics are ours.

side to this overt adoption of the so-called scientific method, and on the other to the overt abandonment of the *a priori* method, without a careful analysis of the essentially dynamic nature and identity of all effective method. A purely mechanical conception, in spite of the profusion of organic terms, underlies this much-praised scientific method in a good deal of what has been offered as contribution to chapters of the science. Sociologists have taken up the problems of the new science from the view-point of the objective results of modern science. Method has been regarded as being just as fixed and established as facts. The latter have been conceived to be projecting themselves into the field of vision of every man who would but open his eyelids. Facts and method have been regarded as if the one were existing ready-made in nature waiting simply for appropriation, while the other has been a product of science which could be simply handed over to and applied by the social investigator.

The writer does not mean to affirm that all investigators of social facts and phenomena have gone at the problems so crudely as this arraignment might imply, nor that any one would admit that he does hold a mechanical conception of facts and methods; yet he does mean to assert that a large part of what has been said about methodology in sociology has confined itself to a reactionary assertion favoring the inductive methods of modern science and of opposition to the deductive method, without any adequate analysis of the essentially organic relation between induction and deduction in mental procedure. The writer finds, therefore, that sociologists have placed themselves in the anomalous position of affirming the dynamic and organic nature of the relations of individuals in society, while, on the side of method, they have asserted with equal vehemence the essentially inorganic, dualistic nature of mental procedure. This contradiction seems, to the writer, to have been a fundamental stricture upon progress in both the formulation of general principles and the detection of salient facts.

What, then, is the true logic of the sociological procedure? What is the essential nature of sociological method? What is the basis of the affirmation that society is an organism? Why is it coming to be regarded among sociological thinkers that the statement that individuals are simply functions of each other, is a truism? Is it not that sociological method, as all effective method, is dynamic and organic, that to grasp the essential principles of any and all relationship is to see that the elements are all functionally interdependent? And is this not just as true of the relation between fact and theory as it is between industrial principals and subordinates?

What, then, we may ask, is the significance of this divorce be-

tween fact and theory? Why are we asked to reduce the mind to a *tabula rasa*, free from all theoretical bias and presupposition, in order that it may be in perfect condition for this photographic exposure to facts?

It is not the purpose of the writer to deny the possibility of a theoretical bias which would absolutely exclude the possibility of a true perception of patent and demonstrable and even demonstrated facts. But, on the other hand, it is equally true that an abstract, mechanical conception of facts is quite as effective in its exclusion of a perfectly valid, though not universally demonstrable, working hypothesis. In other words, theory and fact are related terms. Theory is always theory *of* fact, if it is theory at all, and fact is always fact, if at all, by reason of its relation to theory.

The universe is but a storehouse of raw material, which when abstracted for some particular anthropic purpose or end is thereby transformed for mind into a fact, a means to an end. The raw material is *fact* by virtue of its psychical connection, and it remains fact so long as, and only so long as, it is connected with some psychical end. Its disconnection marks its return to the great storehouse from which it was taken. Its character as fact is defined by the end for which it was abstracted and which it served. It comes to consciousness as fact only when, from the view-point of the end, which is always and necessarily *a priori*, it proves adequate to that end; when it can serve as the means which the end has been groping for in the process of its self-realization. It serves to define the end.

Fact and theory are related in the process of experience as means to end. From the view-point of a functional psychology of experience it is possible to determine the exact nature of the methodological problem of sociologists. Both fact and theory have a negative and a positive phase in the process of knowledge.

It has been said above that fact is a mental derivative; that the affirmation of fact is possible only from the point of view of its relation to an anthropic end as means. This is its positive phase. Its negative aspect appears when it is no longer serviceable in this capacity, when it is rejected as irrelevant. This takes place either when the fact itself has been found to have been fragmentarily conceived, or when the scope of the theory has altered.

Similarly, theory exhibits a positive and negative phase. On the positive side, theory is valid to the extent that it sharply differentiates excluded from included facts. On the negative side, it is questioned when it is undergoing reconstruction, either by reason of its failure to rationalize the facts or by reason of a reconstruction of facts which necessitates a like reconstruction of theory. After all that has been said by science in affirmation of the relativity of

knowledge, it seems strange that there should persist such strenuousness in the insistence upon the positiveness of scientific method. The whole confusion seems to the writer to arise from the failure to grasp the essential meaning of the organic concept. It is a failure to see that the limiting scientific categories, just as truly as the philosophical, are functionally related. The most improved self-binder, with all the latest patents, will cut and garner weeds just as readily as wheat, but the lord of the harvest makes a distinction. The botanist may trample down the wheat to get the weed, but not so the lord of the harvest. Why does the one ignore what the other sees? Is not the weed as practically serviceable to the botanist as the wheat to the lord? Is the value in either case any more theoretical or any more practical than in the other? The economist has a ready answer.

Who has not felt, in reading some of the recent classifications of so-called sociological data, that the line has not been very carefully drawn between what has been subsumed under fact on the one hand, and under theory on the other? The affirmation and classification of data under a certain caption are not necessarily a determinative of credence in the asseveration. And have we not frequently found ourselves greatly pleased to have put into our hands data both carefully collected and arranged, while, on the other hand, there has been a revolt of feeling when the author has attempted to commit us to a certain interpretation of those facts in another relation?

Accordingly, it would seem that we have two equally necessary functions mutually supplementary; and that human nature is so constituted as to make a division of labor both possible and feasible. An old statement of the functional point of view is to the point: "The eye can not say unto the hand, I have no need of thee," etc. "Those members of the body which seem to be more feeble are necessary." Fact and theory, principle and practice, *a posteriori* and *a priori*, are psychologically but the two poles of a single act. Neither pole has any significance apart from the sphere which involves its antipode. Facts are serviceable only in relation to theory, and theory finds its meaning, its realization, only in facts. Historically, it is true that the oscillation is between the two, with the emphasis now upon the one and then upon the other. But the significance of this oscillation is not that either is to be neglected, but rather that the progress in the development of the one has proceeded at a more rapid pace than in the case of the other. The fact that attention does thus focalize now upon one and then upon the other simply indicates the method of all human progress. Man puts but one foot forward at a time.

In our search for theory the differentia of facts is reduced to a

minimum in order that their unifying principle may be determined. While, on the other hand, in our search for facts their differentia are carefully distinguished in order that elemental characteristics may appear. Their unifying principle is put in the background, is reduced to a minimum. But without some background, it is obvious that they would be simply unrelated and arbitrary.

The method of reason, therefore, the true logic, is simultaneously inductive and deductive. It is stereoscopic. Fact and theory, when they appear as such, appear in organic relatedness. They are vital. Until they do so appear there is neither fact nor theory. The situation is problematic.

Of the present status of the logic of the social sciences we may say, then, that it is reactionary, and not functional. In attempting to avoid the errors into which a past historical period had fallen in its state of degeneracy, the pendulum has swung to the extreme of denying any validity to a notable method once held as valid. Instead of determining its positive elements, its validity has been denied without any adequate analysis of its psychological nature. There seems to be a need for a psychology of logic.

In this connection, sociologists might find material for reflection in the statements of the experience of psychologists with the scientific method. Professor James, calling attention to the dearth of definitive results, says:

"In the light of some of the expectations that are abroad concerning the 'new psychology,' it is instructive to read the unusually candid confession of its founder, Wundt, after his thirty years of laboratory experience: . . . Well, has our experimental self-observation, so understood, already accomplished aught of importance? No general answer to this question can be given, because in the unfinished state of our science there is, even inside of the experimental lines of inquiry, no universally accepted body of psychologic doctrine."³

Again he says:

"In my humble opinion there is no 'new psychology' worthy of the name. There is nothing but the old psychology which began with Locke's time, plus a little physiology of the brain and senses and theory of evolution, and a few refinements of introspective detail."⁴

And again:

"It is indeed strange to hear people talk triumphantly of the 'New Psychology'; and write 'Histories of Psychology,' when into the real elements and forces which the word covers not the first glimpse of clear insight exists." "A string of raw facts; a little

³ 'Talks on Psychology,' p. 20-21.

⁴ Wm. James: 'Talks to Teachers,' p. 7.

gossip and wrangle about opinions; a little classification and generalization on the mere descriptive level; a strong prejudice that we *have* states of mind, and that our brain conditions them: but not a single law in the sense in which physics shows us laws, not a single proposition from which any consequence can causally be deduced. . . . The Galileo and the Lavoisier of psychology will be famous men indeed when they come, as come they some day surely will, or past successes are no index to the future. When they do come, however, the necessities of the case will make them '*metaphysical.*' Meanwhile the best way in which we can facilitate their advent is to understand how great is the darkness in which we grope, and never to forget that the *natural-science assumptions* with which we started are *provisional and revisable things.*'"⁵

From these statements it appears that the outcome of the application of scientific laboratory methods has not yielded to psychologists those definitive data which might serve even suggestively to indicate the broader fundamental principles which they had hoped would prove to be ultimate.

Principles, theories, generalizations and syntheses are recognized to be the derivatives of a different mode of approach, or, at least, of a mode of approach which involves the insight of the metaphysician. The product of scientific investigation in the form of an ever-increasing bulk of data has only brought more clearly to consciousness our utter dependence upon constructive talent for the deduction of fundamental principles. In no department of knowledge can this fact be overlooked; and this recorded experience of psychologists ought at least to be regarded as a datum in the consideration of methodological procedure.

What the sociologists are waiting for is precisely the correlating *a priori* mind which can see, by reason of its freedom from thralldom to the multitudinous details of the science, those fundamental and determinative principles which, when they shall have been formulated, will obtain general credence. The positivism of gnostics suggested the relativism of agnostics. And it may be that, similarly, the positivism of sociologists may bring about the reactionary attitude of relativism regarding sociological facts and principles, than which no more baneful position is conceivable, involving as it does the whole realm of morals.

Reverting to the second definition given by Professor Giddings, while, on the one hand, there is the explicit statement of a definite purpose to "get away from '*a priori*' theorizing," there is, on the other hand, the admission that what is sought is 'knowledge, even though of a modest sort, falling short of philosophy.'

⁵James: 'Briefer Course,' pp. 468, ff. Italics are ours.

It would seem that the '*a priori* theorizing' is the chief cornerstone whose rejection has necessitated this 'falling short of philosophy.' Until *a priori* and *a posteriori* are seen to be but names for the difference in the position of the stress in the relation of fact and theory in the process of the discovery of the truth, little progress can be hoped for in any science, and least of all in the correlation and interpretation of the confused and confusing data of sociology.

That there is a place for the *a priori* in sociology is coming more acutely to consciousness with the rapidly accumulating data gathered by a host of investigators into social facts and phenomena. And we may say, in the words of Professor James, concerning the minds that shall establish the new science, 'the necessities of the case will make them metaphysical.' The metaphysicians of the new science will, however, have profited by the progress in logical method both inductive and deductive; their attitude being characterized by its comprehensiveness and not by the deliberate exclusion of any method which has proved serviceable in reaching results.

ALBAN D. SORENSEN.

COLBY COLLEGE.

DISCUSSION

PRAGMATISM¹

MR. F. C. S. SCHILLER, of Oxford University, continues to be at once the most pugnacious and the most facetious protagonist of pragmatism. In his preface to his latest work he chronicles what would seem to be epoch-making events in the history of this theory, viz., Professor James's clear enunciation of it in 1879 and his own later discovery (date not given) that he had been talking pragmatism as far back as 1892 without knowing it. Now he knows it and he tells us that pragmatism is the application to the theory of knowledge of a 'greater and more sovereign principle,' viz., Humanism, which Mr. Schiller knows 'to be habitual' in William James and himself, but 'which seems to be sporadic and inchoate in many others.' Since I am concerned here only with the pragmatic view of knowledge, it may suffice to say that Humanism is 'the philosophic attitude which, without wasting thought upon attempts to construct experience *a priori*, is content to take human experience as the clue to the world of human experience.'²

¹ 'Humanism. Philosophical Essays,' F. C. S. Schiller, pp. xxv + 297. New York, The Macmillan Co., 1903; 'Pragmatism as a Philosophic Method, Irving King, *Philosophical Review*, Vol. XII., No. 5 (Sept. 1903), pp. 510-524. See also 'Studies in Logical Theory,' John Dewey and others, Chicago, The University of Chicago Press, 1903.

² 'Humanism,' pp. xix-xx.

It is to remember that 'man is the measure of all things' and that 'man is the maker of the sciences which subserve his human purposes.'

Mr. Schiller's jaunty onslaughts on Kantian *apriorism*, Bradleian *absolutism* and all other forms of intellectualism are always interesting reading. But the magniloquent and extravagant claims, the 'superior' air and the confident dogmatism pall on one. These qualities of Mr. Schiller's writing, together with his repeated and often tasteless sallies of wit, tend to bring into disrepute a doctrine which deserves a more thorough and serious treatment. When the witticisms, jibes and other 'literary' flights are discounted there is left a residuum of philosophical argument and it is with this that I shall deal.

The first three essays in 'Humanism,' together with the essay on 'Axioms as Postulates' in the volume called Personal Idealism, give in outline Mr. Schiller's conception of the pragmatic theory of knowledge. In the eleventh and twelfth essays in 'Humanism' we find more explicitly stated his metaphysical views.

At the outset of the essay entitled 'Axioms as Postulates' Mr. Schiller lays down the fundamental principles of pragmatism as he conceives it. It appears that the world is not a fixed datum. The cosmos is indeterminate. Our world 'is the fruit of a long evolution,' 'a strenuous struggle.' It is plastic to our choices and responsive to our needs. Still, the world is not *wholly* indeterminate, not exactly 'my oyster.' We find out what it is by *trying*. The world is a *persisting* factor in experience. It offers *resistance* to our efforts. (This reminds one strongly of the elder Fichte's doctrine of the Non Ego as furnishing the *Anstoss* or *limit* to the activity of the Ego—something hard for the Ego to cut its wisdom teeth on.) After all, it is hinted, the universe has some rudiments of a character. If it has not a fixed *actuality* apart from human choices and efforts it seems to have some sort of vague potential constitution, *i. e.*, it offers to the self a limited though wide range of possibilities of action.

The essay entitled 'Useless Knowledge' presents a further statement of pragmatism in the form of a dialogue between Plato, Aristotle and Mr. Schiller. Here we are told that the agreement between different individuals in regard to the nature of the world is a result of *growth*. We perceive things in *practically* the same way, *i. e.*, 'when we say that several perceive the *same* things, what we really mean is that they *act* in a corresponding manner towards them.' "Thus the objectivity of our special perceptions is essentially *practical* and *useful* and *teleological*." (Mr. Schiller might have said that the objective world is a *socially* recognized

group of perceptions—a *social possibility of sensations*.) Truth means objectivity, and, since the test of objectivity is utility or practicality, there is no distinction in kind between the truths expressed in the propositions, swans are white and $2 + 2 = 4$ or parallels never meet. The test of the truth of a conception or proposition is, Does it work? What use can we make of it? The so-called axiomatic and eternal truths are simply those which have been used so long that we have forgotten their origin and that everybody agrees to, *i. e.*, everybody *acts as if* they were true. We test the truth of a new proposition by acting as if it were true. We so act because we desire to. If the result be satisfactory we assume that the proposition is true.

Mr. Schiller makes room for the truth of highly abstract and apparently useless propositions, such as those of higher mathematics, by saying that these propositions are *indirectly* true. They are *true* either because they are *useful in logically completing a system of knowledge* some parts of which have proved practically useful, or, as in some cases, because their use has not been discovered and so, he seems to say, these latter propositions are true in an anticipatory sense. He does not explain why, on the premises of pragmatism, we should pay any regard at all to *logical system* as a criterion of truth. Logical system is just what the method of pragmatism ignores. And at best this case of fitting into a system only gives a secondary and derivative sort of truth. If this test fails, what are we to say of the standing of such doctrines as the theory of numbers for which not an inkling of a practical use has been glimpsed (*pace* Professor Royce's Infinite). Must we await the conversion of the number-theory into cash-value before admitting its truth, while in the meantime we are absolutely convinced of the soundness of the reasonings of Dedekind, Cantor *et al.*?

In the essay on 'Truth' Mr. Schiller examines the theory that the 'true' is that which fits into a system. To this he objects, amongst other things: (1) That there are systems of falsehood; (2) that there is no complete system of truth but many partial systems; (3) against the reply that there is an ideal system into which all the partially true systems must fit he urges the arbitrariness and contingency in the construction of truth as evidence of the unreality of any absolute system of truth. Here, as in many other places, Mr. Schiller, it seems to me, *confuses the psychological or genetic conditions of truth in the making with the criterion and significance of truth as attained*. No doubt in many cases, particularly in those of our general philosophical notions, a study of gene-

sis throws light on their ultimate significance, since philosophy is the interpretation of experience, and experience grows. But I do not see, *e. g.*, how the contingent and arbitrary factor in the development of counting affects the validity of the proposition $2 + 2 = 4$.

Mr. Schiller further objects that 'System' is too poor an ideal. Truth must have *practical* and *emotional value*, and without this we do not regard a 'system' as true. We need 'system' only as a means to the higher notion of 'harmony.'⁴ But there are many kinds of harmony, and is not an intellectual system a harmony *sui generis* for the mind which possesses it? I regard the number-system of algebra as true, but it has no practical value for me and, not being a mathematician, I have not discovered that it produces in me any emotional thrills. Mr. Schiller's general position is that the tests of truth are psychological and that they are primarily matters of feeling. He says that the cause of logical coherence is *interest*.⁵ But *cause* and *criterion* may be wholly different. One may be intensely interested in coherences which never happen, *e. g.*, between oneself and the presidency of a university or the possession of great wealth.

Truth defined psychologically is a form of *value*.⁶ When a value is sustained by experience it becomes useful. Truth is the useful, efficient, workable, 'primarily for any human end, but ultimately for that perfect harmony of our whole life which forms our final aspiration.' Hence those who pursue 'useless' knowledge and possess 'useless' truth are superfluous luxuries. Whence it follows that philosophers who do not hold to and practice the pragmatic method are excrescences.

Value is an ethical category and depends on emotional and practical interests. The pragmatic doctrine of cognition is that thought is a function of action—that it is never an end-in-itself, but always a means to action or, better, an instrument for attaining a harmony of experience. So Mr. Schiller in the first essay in 'Humanism' insists strongly on the ethical basis of metaphysics. Since thought is a mode of conduct, knowledge always involves choice and responsibility. Pragmatism is 'the thorough recognition that the purposive character of mental life generally must influence and pervade also our most remotely cognitive activities.' The search for the *real* and the *true* is a search for the *good*. The good is the supreme category. Nature responds to our choices and hence is to be interpreted humanistically. Our interpretation of reality must be *quasi ethical*, *i. e.*, in terms of the good for persons.

⁴ 'Humanism,' p. 50.

⁵ 'Humanism,' p. 53.

⁶ 'Humanism,' p. 54.

⁷ 'Humanism,' p. 61.

It is already evident that pragmatism with Mr. Schiller has passed the stage of a tentative method for the examination of philosophical concepts and has become a dogmatic metaphysic. For in the essay 'On Preserving Appearances' pragmatism appears in the double rôle of a short and easy method with Mr. Bradley and of a source of principles to which ultimate reality must conform. In his criticism of Mr. Bradley, Mr. Schiller objects that the method of eliminating contradictions is not a final test of reality and asserts that nothing which exists can really be contradictory, although our theoretical interpretations of it may be.

Mr. Schiller proposes the conception of *harmony* as a principle or criterion of reality higher and more fruitful than that of non-contradiction. He insists that *feeling*, e. g., in esthetic experience, often affords a solution of discursive contradictions in a harmony higher than any attainable by pure thought. He insists, further, on the *reality* of immediate experience as more fundamental than conceptual interpretations of experience, and particularly on the reality of *change* as actually given in experience. 'Ultimate reality' must really explain and harmonize our immediate experiences, not abolish nor absorb them. The test of the value of any supposed higher principle is its efficiency in making life more harmonious. It follows that ultimate reality must be *absolutely satisfactory*. We are not told to whom. Nero? or St. Anthony? The place of knowledge in ultimate reality depends on its power to promote the harmony of life. If it were true that he that increaseth knowledge always increaseth sorrow, then, says Mr. Schiller, the pursuit of knowledge would be *irrational*.

The distinction between appearance and reality, says Mr. Schiller, is one that holds *within* our own experience, and any doctrine of a transcendental reality which destroys the *values* that inhere in our immediate experiences stands self-condemned. A conception of ultimate reality should enable us to transform and enhance the meanings of our fragmentary experiences, but it must never abolish the value of these.

The twelfth essay, entitled 'Activity and Substance,' is a really good article⁸ on Aristotle's doctrine of *ἐνέργεια* as substance. Mr. Schiller points out that Aristotle did not conceive ultimate or real activity as involving change or imperfection. It is a completely self-contained activity, a Being which has realized all its potentialities. Mr. Schiller argues for this view as satisfying our requirements for a metaphysical view. I can not discover any necessary connection between his subjectivistic and relativistic pragmatism with its apotheosis of feeling and utility and its emphasis on becom-

⁸ Another good essay is that on Lotze's Monism.

ing and this conception of 'an activity which, transcending change and time, preserves itself in a harmonious equipoise.'⁹

The psychological foundation of pragmatism is, of course, the doctrine made current by Professor James, that ideas always tend to issue in action and that, in general, mental life is teleological. But in Mr. Schiller's hands pragmatism is transformed into a metaphysic which is acosmistic in tendency at least. His emphasis on the principle of harmony, on the values of immediate experience, on the place of interest, purpose and choice in the construction of knowledge, and his insistence on the principle that nature is responsive to our choices, are valuable features representative of a growing tendency in philosophic thought shared in more or less by Ward, James, Stout, Royce, and others. It has much in common with the views of Rickert, Eucken and others in Germany.

But Mr. Schiller is an extremist. He is constrained to admit the existence of a universe. But his universe seems to be so entirely the plastic tool of human need (and caprice?) that it loses all determinate character. The cosmos begins in chaos. It is not clear how and when the ordered world, which science seems to *discover not to make at will*, came into being. The stable universe which we recognize seems, according to Mr. Schiller, to be the product of a sort of 'social contract.' Did the separate and independent personal beings (the pluralistic realities) call a meeting and decide to organize a universe with constitution agreed upon by majority vote?

It is true that we organize our knowledge with reference to our needs and that thought is purposive and useful. But it is equally true that we have to organize our needs with reference to the determinate constitution and order of reality, and in this order some needs must go unsatisfied. How do we know that the evolution of the universe follows the evolution of human thought? Mr. Schiller tends to overlook this aspect of the situation. There is no place for an objective cosmic order in his system. Again, while it is true, I believe, that our lives are largely dominated by the search for *harmony*, there are various types and grades of harmony. '*L'homme sensual moyen*' seeks a harmony that will not satisfy poet or saint. He who prefers pushkin to poetry may attain a harmony as productive of personal satisfaction as the intellectual harmony sought by the philosopher. After all, is not the harmony of world-view, which, I suppose, even a pluralist and pragmatist in philosophy seeks, rather unique and self-sufficient and somewhat remote from the harmony of a 'trust' or of the 'four hundred'? There lacks a principle for evaluating harmonies. As a metaphysic, pragma-

⁹ 'Humanism,' p. 227.

tism seems not to have taken due account of that determinate nature of reality which practical men recognize and science more clearly establishes. As a philosophic method, pragmatism presents a fruitful union of the genetic and teleological methods of treating knowledge. If its advocates will avoid a crassly utilitarian view of knowledge and recognize that thought is not a mere external tool of life and action, but that in its higher stages it is a unique form of spiritual life and activity—a manner of attaining and experiencing ideal harmony—pragmatism can render good service to humanistic philosophy.

The article 'Pragmatism as a Philosophic Method,' by Dr. King, is a critical examination of Professor James's statement of the matter. Dr. King calls attention to the necessity of recognizing the limitations which the real world sets to the workability of theories and concepts and to the satisfaction of needs. He objects that pragmatism seems to conceive thought as in some way external to the world of action and to the world of things. Pragmatism is strong in its assertion of a connection between thought and action, weak in its account of the nature of this connection. It emphasizes effects as tests of validity or truth, but fails to give us a criterion for distinguishing good and bad effects. In order that it may distinguish different kinds of effects pragmatism 'must be able to determine what sort of an objective system it is most desirable to have perpetuated.' The test of feasibility can not be applied off-hand. Pragmatism must make a preliminary investigation of what it is we can rightfully assert to be real, and it must recognize that thought is an organic and functional part of experience as a whole and the functional and organic relations of a particular thought can be determined only by genetic and sociological treatment.

Dr. King's criticism is pertinent and acute so far as it goes, although it perhaps hardly makes due allowance for the fragmentary form of Professor James's utterances; Dr. King's own indication of the 'functional' view of knowledge as supplying the deficiencies of pragmatism is rather vague.

It does not fall within the scope of the present article to discuss in detail the functional conception of thought advocated by Professor Dewey and his disciples.¹⁰ But there are certain presuppositions common to this view and to pragmatism which may be briefly noticed. First is the notion of 'harmony' or 'integration' of experience as the end which it is the whole business of thought to further. "The test of validity of idea is its function or instrumental use in effecting the transition from a relatively conflicting

¹⁰ 'Studies in Logical Theory.'

¹¹ 'Studies in Logical Theory,' p. 75.

experience to a relatively integrated one."¹¹ "All the distinctions of the thought-function, of conception as over against sense-perceptions, etc. . . . all these distinctions come within the thought situation as growing out of a characteristic antecedent typical formation of experience; and have for their purpose . . . the restoration of a deliberately integrated experience from the inherent conflict into which it has fallen."¹² "Life proposes to maintain at all hazards the unity of its own process. Experience insists on being itself, on securing integrity even through and by means of conflict."¹³ Which is all very suggestive as a genetic theory of thought, but as a criterion and account of the meaning of truth this sort of thing seems to me very vague. It fails to account for *universality* and *objectivity* as marks of truth. Moreover, we must not play fast and loose with such notions as 'integration,' 'harmony,' 'social utility,' etc. An experience intellectually integrated has a very different character from an experience esthetically integrated. Both involve feelings of harmony. But the *nuances* of emotional coloring and the constitution of the resultant experiences differ as the actual processes and methods of integration have differed. And it is just the business of logic to discover the *differentiæ* of intellectual integration. It can hardly be admitted off-hand that the sole criteria of successful thinking are social and individual utility, etc. We must distinguish *genetic process* and *end* here as in the parallel case of the evolution of art. It is doubtless true in both cases that the mental processes involved are in their origin and development largely stimulated by social needs, and that the results have social utility. But it does not follow that science and art have not at their higher levels *inherent* significance. We may say that truth has no meaning apart from the experience of selves. But it does not follow that truth is without inherent worth and objective standing and that it is a *mere instrument* of easy transition to peace and harmony in an over-intellectual experience. The second presupposition common to Messrs. Dewey and Schiller seems to be the evolving nature of reality. "Since reality must be defined in terms of experience, judgment appears accordingly as the medium through which the consciously effected evolution of reality goes on; that there is no reasonable standard of truth (or of success of the knowing function) in general, except upon the postulate that reality is dynamic or self-evolving."¹⁴ *Now the reality of an evolution in human experience is one thing and the evolution of reality in its totality is a very different thing.* Granted that there is a real significance in our discovery of truth and attainment of goodness, etc.,

¹² *Ibid.*, p. 47.

¹³ 'Studies in Logical Theory,' p. 81.

¹⁴ 'Studies in Logical Theory,' preface, p. x.

considered as evolutionary processes, nevertheless it seems to me to be essential to the notion of truth (as more than mere relativity and change in individual experiences, for 'society' does not have experiences) to hold that it is *timeless*. And I can not see what meaning there can be in a *perfect reality* which is in evolution as a whole. Either all is flux and then 'integration' and truth and goodness and beauty are purely relative and shifting, or there must be a real principle which is beyond change. In the latter case our criteria and specific contents of truth, although not necessarily final and complete, may yet have a real validity. It is not necessary that we should know 'the absolute completely in order to have valid knowledge. But if there is nothing more than the relativity and flux of individual experiences, whether taken singly or in sum, there can be no absolute truth or perfection to aim at and I see no meaning in talking about 'reality' at all. It may be our lot to evolve but slowly towards the comprehension and possession of a permanent principle of reality, but unless we can presuppose such a reality as a self-existent end our successive mental acts, whether theoretical or practical, seem devoid of any *inherent* and *final value*. And *now* in the midst of the struggle either *our* evolving, 'integrating' and shifting experiences are the only realities so-called, or else there is implied in the very zest and seriousness of our efforts a reality which is *not* in evolution. Does not the former hypothesis remove the very nerve of the endeavor after the true and the good? I merely raise these questions in order to insist that pragmatism and the functional theory involve problems in regard to reality that can neither be brushed aside as ontological and antiquated or settled off-hand by the evolution method.

J. A. LEIGHTON.

HOBART COLLEGE.

REVIEWS AND ABSTRACTS OF LITERATURE

Educational Psychology. EDWARD L. THORNDIKE. New York, Lemcke and Beuchner, 1903. Pp. 177.

Those who have been used to seeing 'educational psychologies' that contain some extracts of psychology and many infusions of pedagogical maxims and methods will probably be surprised when they open this book. Those, however, who have read the author's 'Notes on Child Study,' will read the book with some sense of familiarity and will realize that it is the same material enlarged, deepened and more definitely organized with reference to scientific methods of investigation and interpretation. It is not a philosophy of education, but the outline of an inductive science which is to be developed by extensive experimental investigations and the application of exact mathematical formulæ.

He first states that educators *must* judge of the amount and kind of changes produced in minds and bodies by the several means used, and shows that it is possible in many cases to substitute exact measurements of such changes for the indefinite and unreliable judgments employed, and illustrates how the 'average,' 'mean,' 'mode' and 'average deviation' of a series of measurements may be calculated. He then illustrates by diagrams how closely the theoretical law of the distribution of traits is approximated by the results of various measurements of mental and physical characteristics, and emphasizes the importance of average deviation being given in order that results may be correctly interpreted.

The problem of the relationship between various mental traits is then outlined, the methods of computing them given and the results of experiments quoted, showing that in many cases the common opinions and theories of the correlation of mental traits are without foundation; *e. g.*, ability in algebra and ability in geometry are only slightly related, while ability in science and ability in English are more closely correlated than ability in Latin and ability in English.

In discussing original and acquired traits the principal facts quoted are from Galton's 'Study of Twins,' and the most startling conclusion is that "The one thing that educational theories of to-day seem to place as the foremost duty of the school—the development of powers and capacities—is the one thing that the schools or any other educational force can do least."

In the following chapter abundant proofs are quoted from Galton, Pearson and others showing that mental traits are inherited, and evidence is given against the theory that acquired traits are inherited in any appreciable degree. The next chapter, in which Rice's experiments in spelling and arithmetic are extensively quoted, attempts to show that the influence of environment is not great. However much this may be doubted, the following statement will be very much appreciated by those beginning to view education from the broader standpoint of biological development. "The work of education is, (1) To supply the needs of the brain's healthy growth and to remove psychological impediments to it; (2) to provide stimuli to desirable mental variations and to withhold stimuli from the undesirable; (3) To make the outcome of desirable activities pleasurable and to inhibit their opposites by discomfort."

The chapter on the influence of special forms of training upon more general abilities is a more complete elaboration of the authors' already published view that special training has no effect on general ability in the sense in which it has been claimed. A brief chapter on the influence of selection effectually shows how interpretations of data are often erroneous because the facts are obtained from selected cases; *e. g.*, arguments for the value of college training lose much of their force when we recollect that college students are a selected class of youths and not representatives of the masses. The influence of selection is also made much of in the chapters on changes in mental traits with age and on sex differences in mental traits, with the result that doubt is thrown on nearly all conclusions of investigators in these lines.

The chapter on exceptional children treats in a very thorough and suggestive way exceptional superiority, exceptional defects, general mental defects, exact measurements of exceptional children, moral defectives, exceptional rates of growth, precocity, slow growth and arrested development, while the succeeding chapter has an equally critical discussion on the relationship of mental and physical traits. The chapter on 'Broader Studies of Human Nature' is in the main a criticism of studies made by the *questionnaire* method, which the author regards with little favor largely because the data are usually unreliable, since the answers frequently involve opinions rather than facts and are often suggested by the questions, while the answers are by selected individuals and frequently in a form not suited to quantitative treatment.

In the last chapter, on the problem of education as a science, it is stated that a theory of education must answer these two questions: 'What ought people to do?' and 'How shall we change them from what they are to what they ought to be?' The first is a matter of ideals, while the second, to which the author devotes his whole attention, is a question of facts. He says: "Since groups of variable facts will be the material it studies, statistics will everywhere be its handmaid. The chief duty of serious students of the theory of education to-day is to form the habit of inductive study and learn the logic of statistics. Long after every statement about mental growth made in this book has been superseded by a truer one the methods which it tries to illustrate will still be profitable and the ideals of honesty in statistical processes by which I hope it has been guided will still be honored."

This quotation is in itself a good characterization of the whole book. It is the work of a genuine scientific educator. Much of it is critical and negative while the positive though tentative conclusions show reactions against current theories. The effect will be to discourage some enthusiastic young students of education and to antagonize older theoretical educators, while those thoroughly imbued with the spirit of scientific investigation will be stimulated to more careful work in this promising but complex field of scientific research.

This book with its hitherto unexampled emphasis of exact measurements in the study of education marks our entrance upon a new epoch in the development of educational theory and practice. It will surely be a powerful influence in checking the loose theorizing and hasty generalizing that have been so common in educational literature, and it will be an important factor in promoting more accurate thinking and painstaking investigations.

On the other hand, Dr. Thorndike seems to expect more from the methods of exact experiment than do many others who are in complete sympathy with the purposes and methods of this book. We already have an almost perfect science of bridge-building founded on exact measurements, but there is scarcely a hope that we shall have even in the distant future such a perfect science of poetry or picture building, and the same is true of mind and character building. Education must be carried on for many years before it can be based to any considerable extent on exact measurements, and such basis may never be supplied in some lines.

In the meantime we must depend upon unscientific investigations and inexact estimates which we should be ready to replace by exact measurements as fast as such data are supplied us. The present writer believes that the large amount of time devoted to the collection and interpretation of educational data by more or less unscientific methods is not wholly wasted. It has prepared the way for the more exact work advocated by Dr. Thorndike and a great deal has been learned by every investigator that can not be expressed in the form of exact measurements. In studying young children especially, more depends upon the tact and insight of the investigator than upon his instruments and methods. Even imperfect data crudely interpreted are also better than antiquated theory mechanically applied, hence the numerous crude studies of children that have been made within the last decade have not been without their value in this transition period. It is to be hoped, however, that Dr. Thorndike's book will result in much less careless work by those who claim to be making scientific investigation of educational problems.

E. A. KIRKPATRICK.

STATE NORMAL SCHOOL,
FITCHBURG, MASS.

Kant's Transcendental Idealism and Empirical Realism. I.-II. C. M. WALSH. *Mind*, October, 1903, pp. 454-472, and January, 1904, pp. 54-71.

In the words of the author, "This paper does not advocate the adoption of the transcendental realism rejected by Kant. It attempts merely to show that in rejecting this theory and in setting up his own Kant did not have clear and distinct ideas about the subjects of which he was treating. It attempts to show that Kant was confused in his theory of empirical realism, or conception of an outside phenomenal world, which his critics have generally been willing to accept, as much as in his conception of the things in themselves, which his critics have generally repudiated." (*Mind*, January, 1904, p. 71.) There is no division of the topic corresponding to the two papers, and they leave the reader somewhat confused by the monotony of detail. And there is altogether too much verbal wrangling over 'phenomenon' and 'thing in itself.' But the main contention is forcibly and effectively stated. Kant's doctrine as a whole is neither subjectivistic nor realistic enough to be self-consistent. His refutation of Berkeleian idealism, and his frequent references to the unity and externality of the natural world, do not agree with his supposition that this world is indispensably conditioned by percipient beings and the formative principles that belong to their nature. The latter is a self-consistent doctrine. We may suppose a thing-in-itself to determine experiences in percipient beings, and to persist as the ground of possible experience where these experiences themselves have lapsed. But in that case, instead of one nature, we have as many natures as percipient beings, with a certain identity of ground and similarity of content. This would be the very 'material idealism' that Kant so strongly disclaimed. Or, as is stated at the opening of the second paper,

there are two possible doctrines for the title 'Empirical Realism.' The first of these, a pluralistic subjectivism, is not realism, and the other is a type of transcendental-realism, and hence not empirical.

The author is to be credited with the selection of the most interesting problem of interpretation that arises in connection with the 'Critique.' And the above objection is, in its generality, well taken. The reviewer feels, however, that the elaboration of the objection is, in the first place, unsatisfactory in the matter of emphasis. It is most fair and most enlightening to construe the 'Critique' in terms of that which is most distinctive in it. Such is not the case with the 'Æsthetic,' which is an earlier work only imperfectly assimilated to the central doctrine, but is the case rather with the 'Transcendental Deduction of the Categories.' In that discussion the fundamental doctrine is that of *the objective (or universal and necessary) intent of the least experience*. The Transcendental Unity of Apperception is virtually the *knower* in all experiences that can be reported at all. But Kant denies that such a knower may itself be known as other than a logical conception, though it gives form to all knowledge, and distinguishes real experiences from the manifold of the internal sense. Indeed, in exercising this corrective function it attaches itself in Kant's mind to the very subjectivity in contradistinction to which it was defined. So Kant hovers between subjective idealism and realism, and plays into the hands of absolute idealism. But while it is certainly true, as the author maintains, that we have here to deal with an equivocal doctrine, to the reviewer it seems more true to Kant (and be it said to his credit) to begin with his empirical realism, or the unity and objectivity of the world of organized experience, and to show that subjectivism is incompatible with it, rather than to regard the former as an intrusion upon the latter.

In the independent discussion in the latter part of the second paper, the author recognizes Kant's close approach to a doctrine which he calls 'Phenomenal Realism.' Kant did not maintain a realistic doctrine, but 'brought forth only a muddled and ambiguous conglomeration which, when clarified, resolves itself into one or another of the older views' (p. 71). As a second criticism the reviewer would urge the inaccuracy and injustice of this depreciation of Kant's originality. The subjective strands of his weaving are not, it is true, such as to place him distinctly in advance of Berkeley or Leibniz. And his realism is closely similar to that of Plato, Berkeley (in his doctrine of God and nature) and Malebranche. But this doctrine of the function of the category in determining the unity of a realm or system of truth, with the application of this doctrine to nature and its divisions, is a philosophical classic. The best philosophy of nature since the time of Kant has been built upon this foundation. And this same conception of the constructive and constitutive reality of categories lies at the root of absolute idealism, a movement which testifies to Kant's originality even when it misconceives him and compounds error.

RALPH BARTON PERRY.

HARVARD UNIVERSITY.

Caractère de l'Histoire. A. D. XÉNOPOL. *Revue Philosophique*, January, 1904, pp. 29-45.

M. Xénopol insists that there are no historical laws, only historical series, developments from a nucleus to a result. For laws imply eternal repetition; while history deals only with individual facts, facts that, though possessing general and collective elements, can never be repeated. The sociologist is rebuked for attempting to bring the material of history under laws of *development*, an attempt that tends to 'destroy the differential element of the several historical series.'

His view accords in general with that of Rickert. The latter's reference to continuity as the principle of connection in history is overlooked; it would have been of service in the discussion. The individuality that Rickert recognizes as an ultimate character of reality, M. Xénopol would base on a 'croyance' that certain facts are such that nothing just like them will occur again, the uniqueness, in some cases, being merely their places in time. M. Xénopol renders a service, I think, in transcending that limitation of history to the acts of men in society which the convenience of academic administration seems to suggest; a limitation that results in confusing the aim of the historian with that of the sociologist, moralist or artist. Neither Rickert nor Münsterberg, *e. g.*, seems to allow for the historians of strata and of animal forms.

The historian obviously treats the past as past, and as real in spite of its pastness; from this one fact the concept of history can, I believe, be developed. As memory proper attaches to some present self, so historic pasts belong to some present evidence or fulfillment. As the present, coexistent world of evidence is somehow common to all, so history is 'objective.' It is built up solid and unyielding by the intersection of many past actions, which are measured and interrelated by reference to that one action whose 'counting' is time. History extends indefinitely backwards, but moves always to the present, be that one or many. Its content is a continuous action, like that in memory, regardless of mechanical explanations. But scientific laws suggest the action of which the evidence is the fulfillment, and confirm or reject hypothetical action; though the final test is the 'fact,' the interrelation of the various actions thus posited.

The sociologists have annoyed M. Xénopol; but it is hard to sympathize with him. He admits the application of 'laws of development' to primitive human history; why not apply them as far as we can? Why not set as our *ideal* the mechanical interpretation of all history? The scientist always *starts* from history. The physicist measures a past action by means of present evidence. The past is no mere memory, but true, 'objective' history, or his laws would have no validity. He constructs his machines ideally; but the verification of his conclusion is again to be found in a history, a past of which there is evidence, not a mere memory. He must be able to interpret that history mechanically. The orator is satisfied with his 'science' when applause and breathless silence have met his efforts according to calculation. And so the sociologist starts from history and comes back to it. History by its

ideal of continuity is distinguishable from all scientific constructions of and in it. It grows forever; and must ever have a new fact as a problem for the scientist.

PERCY HUGHES.

COLUMBIA UNIVERSITY.

Herbert Spencer. H. HÖFFDING. *Tilskueren*, January, 1904, pp. 1-8.

Mr. Spencer, says Professor Höffding, exhibits the empiricism and realism common to the English school of thinkers, though he has sought to widen the horizon, and in so doing has introduced an essential change. The doctrine enunciated in the 'Principles of Psychology,' that the capacities and characteristics of the entire human race as exhibited in the life of the individuals constituting it, must be explained, not from the conditions surrounding the individual alone, but must and can be explained out of the external conditions under which the development of the race has taken place, will insure Mr. Spencer a permanent place in the history of thought. The three volumes of his 'Essays' probably constitute a more permanently valuable contribution than the series of systematic works, which latter are often mere schematic outlines, projected beforehand, and filled in afterwards. His critics are probably right in designating the reconciliation of religion and science in the *First Principles* as illusory and inconsistent. The most important objections which can be urged against him are of an epistemological character. His zeal to compile, systematize and deduce often drives him into an uncritical attitude. His main interest lies in presenting the idea of evolution in its strongest light, and this causes him to treat inadequately many problems, especially the problem of the validity of knowledge and its final presupposition, and the problem of the relation between the psychical and the physical. But the main results of Spencer's analysis of the development idea will undoubtedly be of permanent significance. An exhaustive consideration of the causal concept will in time demonstrate that a similar inquiry must be directed to the related concept of development. Spencer has pointed out the close connection between these two ideas, and his investigation of the concept of development will always remain an important contribution to the doctrine of the categories.

DAVID F. SWENSON.

UNIVERSITY OF MINNESOTA.

Ueber die stereoskopische Wirkung der sogenannten Tapetenbilder.
BERNHARD FUCHS. *Zeitschrift für Psychologie und Physiologie der Sinnesorgane*, XXXII., 2, pp. 81-86.

This article presents three figures which can be used for the purpose of securing binocular fusion when the eyes are converged either in front of the page or behind it. Nothing essentially new appears in the discussion. The author emphasizes the well-known fact that if there is the slightest lack of uniformity in the repeated patterns, the different parts of the figure will seem to lie at different levels, whereas, the more uniform the drawings, the more nearly the figures will seem to lie at the same level.

CHARLES H. JUDD.

YALE UNIVERSITY.

Blickrichtung und Grössenschätzung. ALFRED GUTTMENN. *Zeitschrift für Psychologie und Physiologie der Sinnesorgane*, XXXII., 5, pp. 333-345.

The author has determined under experimental conditions the difference in apparent size of objects at the level of the eyes and at an elevation of forty degrees above this level. Two series of measurements were made. In both series an ordinary perimeter served to hold the objects at equal distances from the eye. First, two adjustable lines at the level of the eyes were separated by means of a screw until they seemed to be just as far apart as were two similar lines placed at an elevation of forty degrees. The same experiment was repeated with the upper lines made adjustable. Second, colored disks made adjustable by means of diaphragms were compared. It was found that objects at forty degrees elevation appeared on the average about three per cent. smaller. It was noted also that the movement of the eyes upward produced a more pronounced effect than a corresponding movement downward.

CHARLES H. JUDD.

YALE UNIVERSITY.

JOURNALS AND NEW BOOKS

PFLUGER'S ARCHIV FÜR DIE GESAMTE PHYSIOLOGIE. September-November, 1903, Band 99, Heft 3-10. *Das Talbot'sche Gesetz und die Dauer der Lichtempfindungen* (pp. 95-115): GÖRZ MARTIUS. - In answer to Marbe's criticisms, the author discusses at length the relation between his earlier experiments on intermittent light stimulations and Talbot's law. There are no new experiments reported. *Ueber die Wirksamkeit der Nerven auf das durch Ringer'sche Lösung sofort oder mehrere Stunden nach dem Tode widerbelebte Säugethierherz* (pp. 245-252): Also, *Sind zwischen dem extracardialen Theil der centrifugalen Herznerven und der Herzmuskulatur Ganglienzellen eingeschaltet?* (pp. 253-263): H. E. HERING. - Monkeys' hearts were excited to regular action by means of Ringer's solution for a considerable period after the death of the animal; indeed, after the tissue had twice been kept over night in a frozen condition. It was found that the vagus functioned for about six hours after the treatment began, while the accelerator nerve functioned for about fifty-four hours. Analogous experiments on sympathetic cells which also seem to stop functioning early, justify the conclusion that the nerve cells in the heart are essential to the action of the vagus, but not to the action of the accelerator. The cells in the heart are, accordingly, not the centers for that organ's automatic action. *Die Bedeutung der Salze der Ringer'schen Lösung für das isolirte Säugethierherz* (pp. 264-318): E. GROSS. - Reports in detail the effects produced by the various salts which go to make up Ringer's solution when these salts are applied in different combinations to the hearts of mammals. *Ueber Nervenreizung durch Induktion* (pp. 357-362): M. GILDEMEISTER. - A nerve was placed so as to become the

secondary coil in an induction circuit. The muscle attached to this nerve showed contractions when the current was broken, but not when it was made. *Ueber die Wirkung der Labyrinth und des Thalamus opticus auf die Zugcurve des Frosches* (pp. 363-384): GUSTAV EMANUEL. - The muscle tonus was tested by suddenly pulling down the legs of a frog by means of weighted levers which were so arranged as to record by their movement the elasticity of the muscles. The curve secured when the frog is normal differs in a characteristic way from that which is produced when the central nervous system of the frog is destroyed. The same effect which is produced by extirpating the whole nervous system may be produced by extirpating merely the thalamus. Again, the same effect is produced by destroying the labyrinth of the ear. This shows the non-auditory function of certain parts of the labyrinth (Ewald), a motor function in the thalami, and finally a probable connection between the thalami and the ear nerves. *Ueber die Einwirkung verschiedener einatomiger Alkohole auf das Flimmerepithel und die motorische Nerven-faser* (pp. 481-512): HANS BREYER. - Three distinct stages of change in the epithelial cells and motor nerve fibers can be demonstrated when they are acted upon by weak solutions of the alcohols. The first stage is one of depression, the second one of excitation, the third one of prolonged depression. Author concludes that the second period is one of true stimulation.

ARCHIV FÜR DIE GESAMTE PSYCHOLOGIE. April-June, 1903. Band I., Heft. 1-4. *Zur Einführung* (pp. 1-8): E. MEUMANN. - Modern psychology owes its methods and data, on the one hand, to introspective and philosophical studies, and, on the other, to physiological and experimental investigations. This double origin at first led to conflict within the science. Gradually a general discipline capable of being at once experimental and introspective has grown up. This general discipline is capable of a variety of useful applications. The *Archiv für Gesamte Psychologie* dedicates its services to the promotion of all phases of this general science. *Über Ermüdungsmessungen* (pp. 9-30): EMIL KRAEPELIN. - A critical rejection of most of the work on fatigue, especially the work that has been done on school children in large groups. We must have a more careful examination of individuals. This can be best made, not by resort to one kind of fatiguing work to the exclusion of others, but by the measurement of what seems to be a thoroughly characteristic individual trait, namely, the most favorable pause for recovery from fatigue. Some pauses are short for full recovery, others unnecessarily long. The most favorable pause furnishes the desired quantity for the comparison of individuals and the determination of fatigue. *Über den Einfluss von Nebenreizen auf die Raumwahrnehmung* (pp. 31-109): HAYWOOD J. PEARCE. - The article reports briefly a series of experiments in which the localization of a tactual, auditory or visual stimulus is influenced by the presence of a like stimulus near to it. This secondary stimulus affects localization at first by a kind of contrast and afterward by a kind of attraction. The second part of the article reports in detail

experiments which show that a tactual illusion similar to the Müller-Lyer illusion for vision, exists. Quantitative determinations of this tactual illusion are given. *Über die Möglichkeit einer Quantität der Tonempfindung* (pp. 110-147): R. GAETSCHENBERGER. — An effort to demonstrate in a purely theoretical way the existence of a characteristic of physical sound-waves which varies with the size of vibrating surfaces, and may accordingly be the physical condition of an attribute of original extensivity in auditory sensations. The form of vibration of an air particle can not be described as an oscillation in a sine curve with its middle point at the original point of rest; for the vibrating body does not draw the air particle back (as ordinarily assumed in the rarified phase of the wave). The center of oscillation is determined by the form of the positive impulse imparted to the air, and this in turn depends upon the size and character of the sounding body. *Zur Psychologie der Aussage* (pp. 148-183): ARTHUR WRESCHNER. — An effort to supplement Stern's discussion of the memory for pictures. A picture (reproduced in the text) was shown to a number of subjects. An elaborate account is given of the various degrees of accuracy exhibited in the description of all the different objects in the picture. The results are, from the nature of the case, incapable of any very systematic statement. *Besprechung. Roetteken's Poetik* (pp. 1-6): A. SCHEUNERT. *Referate. Fortschritte auf dem Gebiete der Erforschung der kindlichen Sprache in den Jahren 1898-1902* (pp. 7-20): HERMANN GUTZMANN. *Einfühlung, innere Nachahmung, und Organempfindungen* (pp. 185-204): THEODOR LIPPS. — The well-known position of the author, that esthetical appreciation is due to the fact that we read into objects human strivings and satisfactions, is here defended against the interpretation that this appreciation depends on sensations of muscular strain which arise from involuntary movements made during the examination of the object. The actual muscular tensions thus aroused are not significant. The attitude of esthetical sympathy precedes and outweighs any bodily sensations. *Differenzttöne und Konsonanz* (pp. 205-275): FELIX KRUEGER. — The first of a series of articles. See notice under same title below. *Ueber Einzel- und Gesamtleistung des Schulkindes* (pp. 276-416): AUGUST MAYER. — A series of tests in taking dictation, in mental arithmetic, and in filling out sentences according to Ebbinghaus's method, were made by the author on children of the 'Volkschule.' The results are reported with minute detail, every possible form of treatment being resorted to. The conclusions are favorable to class instruction and class work as compared with individual teaching. *Referate. Fortschritte auf dem Gebiete der Psychophysik der Licht- und Farbenempfindung* (pp. 21-60): WILHELM WIRTH. *Untersuchungen zur Ökonomie und Technik des Lernens* (pp. 417-526): CHRISTO PENTSCHEW. — An article reporting experiments on the learning by heart of (a) various groups of nonsense syllables, and (b) significant sentences. The tests were made to determine whether it is more economical to learn the matter in short sections, or by repetitions each time of the whole matter. Results favored very decidedly the method of learning by wholes. In point of repetitions required, in point of ease and accuracy of recollection and usually in point of time,

the method of learning by wholes is preferable. *Über die Frage des Abhängigkeitsverhältnisses der Logik von der Psychologie* (pp. 527-544): E. DÜRR. - A critical refutation of Husserl's and Schuppe's contention that there is a fundamental distinction between psychology and logic. The argument deals chiefly with the question of the relation between objects in the scientific sense of this term, and consciousness of objects. The author finds it impossible to deal with this distinction from a purely logical point of view, and therefore criticizes the writers above mentioned. *Referate. Fortschritte auf dem Gebiet der Völkerpsychologie, Kultur- und Gesellschaftslehre, 1902* (pp. 61-67): A. VIERKANDT. *Referate. Die neueren Erfahrungen über die Sprachstörungen des Kindesalters 1898-1902* (pp. 67-89): HERMANN GUTZMANN. *Besprechung. Uexküll's Im Kampf um die Tierseele* (pp. 90-92): WILHELM AMENT. *Differenztöne und Konsonanz* (pp. 1-80): October, 1903, Band II., Heft 1, FELIX KRUEGER. - A second paper continuing the discussion begun in the second number of Band I. The whole is an elaborate constructive and critical treatment of the theory of consonance and dissonance, based upon the author's earlier investigations on difference tones. Difference tones are more numerous than has been commonly recognized, and they are different in quality and feeling tone from primary tones. This unique character of combination tones is more significant in the final explanation of consonance and dissonance than are the differences in the number and relations of overtones. A third article containing the final conclusion is to appear in a latter number of the *Archiv*. *Wechselwirkungen beim Ursprung von Zauberbräuchen* (pp. 81-92): A. VIERKANDT. - A brief analysis of the psychical processes which lend to superstitions and magic their power. Such processes are not of a logical type, but are emotional suggestions. They arise sometimes out of strong personal desires, sometimes out of community convictions. *Besprechungen. Lipp's Einheiten und Relationen* (pp. 1-10): ARTHUR WRESCHNER. *Clifford's Von der Natur der Dinge an Sich* (pp. 10-13): PAUL LINKE. *Longinos's Ueber das Arhabene* (pp. 13-14): E. MEUMANN. *Beiträge zur Psychologie der Aussage* (pp. 14-15): E. MEUMANN. *Weygandt's Atlas und Grundriss der Psychiatrie* (pp. 15-17): ARTHUR WRESCHNER. *Bechterew's Die Energie des lebenden Organismus und ihre psycho-biologische Bedeutung* (pp. 17-20): BRUNINGS.

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NOTES AND NEWS

THE second International Congress of Philosophy will open on Sunday, the fourth of September, 1904, in the Aula of the University of Geneva, at two o'clock in the afternoon, and continue until Thursday evening, the eighth of September. Besides general sessions of the congress, there will be sessions of sections under the direction of sectional presidents, and the sections will be subdivided, if necessary. The general sessions will be occupied exclusively with the discussion of questions fixed in advance by the Committee of Organization, and introduced by appointed speakers. There will be no sessions of the sections during the general sessions. There will be five sections: history of philosophy; general philosophy and psychology; applied philosophy (ethics, esthetics, sociology, philosophy of religion, philosophy of law); logic and philosophy of science; history of science. English, French, German and Italian are recognized as the official languages of the congress. All communications relative to the congress should be addressed to the general secretary, M. le Dr. Ed. Claparède, 11 Champel, Geneva.—The officers of the Congress are the following: PERMANENT INTERNATIONAL COMMITTEE.—*German Language*: Messrs. Barth (Leipzig), Cantor (Heidelberg), Mach (Wien), Riehl (Halle), Schroeder (Karlsruhe), Stein (Berne). *English Language*: Messrs. Baldwin (Johns Hopkins), Carus (Chicago), Ladd (New Haven), MacFarlane (Pennsylvania), Ritchie (St. Andrews), Russell (London), Schurmann (Ithaca), Stout (Oxford). *French Language*: Messrs. Bergson (Paris), Boutroux (Paris), Couturat (Paris), Dwelshauvers (Brus-

selles), Gourd (Geneva), Leon (Paris), Mansion (Gand), Remacle (Hasselt). *Italian Language*: Messrs. Calderoni (Florence), Cantoni (Pavie), Peano (Turin), Vailati (Come). *Scandinavian Languages*: Messrs. Aars (Christiania), Geijer (Upsal), Mittag-Leffler (Stockholm). *Slavic Languages*: Messrs. Drtina (Prague), Iwanovski (Moscow), Kozlowski (Varsovie), Vassilief (Kázan). COMMITTEE ON ORGANIZATION. — *Honorary President*: Ernest Naville, Professeur honoraire de l'Université de Genève, Associé étrange de l'Institut de France. *President*: J. J. Gourd, Professeur à l'Université de Genève. *Vice-President*: Adrien Naville, Professeur à la Faculté des Lettres de Genève. — Th. Flournoy, Professeur à la Faculté des Sciences de Genève. *Treasurers*: P. Duproix, Professeur à la Faculté des Lettres de Genève. — H. Kündig, Editeur. *Secretaries*: Ed. Claparède, Dr. en médecine, Rédacteur des Archives de Psychologie. — Ch. Werner, Licencié ès Lettres. — X. S. Combothecra, Dr. en droit, Privat-docent à la Faculté de Droit de Genève.

DOCTOR BENNO ERDMANN, Professor of Philosophy at the University at Bonn, has been called to Tübingen.

At the Kant Centenary at the University of Königsberg Professor Rudolf Stammler, the present Rector of the University of Halle-Wittenberg, received the degree of Ehrendoctor der Philosophie for being the first scholar to apply Kantian epistemological methods to social science and theoretical jurisprudence. The honorary degree of Doctor of Philosophy was also conferred upon Doctor Edward Caird, the Master of Balliol.

THE centenary of Kant's death was commemorated in St. Louis by a largely attended public meeting held in the rooms of the Ethical Society. Addresses on various aspects of Kant's work were delivered by Mr. W. L. Sheldon, Professor Frank Thilly, Professor A. O. Lovejoy, Rev. G. A. Dodson, Ph.D., Rev. J. W. Lee, D.D., and Mr. F. Louis Soldan. A subscription for the fund to be donated to the maintenance of *Kantstudien* was opened and something more than \$100 was contributed by citizens of St. Louis and vicinity.

DOCTOR HUGO MÜNSTERBERG, Professor of Psychology at Harvard University, and Non-resident Lecturer in Psychology at Columbia University, has just completed at Columbia a course of seven lectures on the following subjects: (1) The Aims and Limits of Psychology; (2) Consciousness; (3) Mind and Brain; (4) Sensations; (5) Perception; (6) Feelings; (7) Will. On the evening of March 7th Professor Münsterberg was present as the guest of the Psychological Journal Club of Columbia. The meeting was devoted to a discussion of the philosophical and psychological doctrines outlined in his lectures.

THE Southern Society for Philosophy and Psychology was organized February 23d in Atlanta, Ga. Its officers are:—*President*: Professor J. Mark Baldwin, Johns Hopkins University; *Secretary*: Professor Edward Franklin Buchner, University of Alabama; *Council*: the President, Secretary and Doctor William T. Harris, Washington, D. C., Mr. Reuben Post Halleck, Louisville, Ky., and Professor A. Casewell Ellis, University of Texas. The aim of the organization is to promote the welfare of philosophy and psychology in Southern institutions.

THE JOURNAL OF PHILOSOPHY

PSYCHOLOGY AND SCIENTIFIC METHODS

RECENT PHILOSOPHICAL PROCEDURE WITH REFERENCE TO SCIENCE

NOW that philosophy and science are showing so commendable an interest in one another, the problem of their true relation in the system of knowledge is a question of considerable significance. Indeed, the general character of present-day philosophy is best defined in terms of its attitude to science. The true order of knowledge is always for a time distorted by the brilliant success of any special type of investigation. But the conquests of science are now an old story, and we of the present generation should be able to judge of the issue with sobriety and logical highmindedness. The philosophy of the day is, in its most enlightened moments, conscious of a call to the task of interpreting the scientific activity and its fruits, for the sake of the proper coordination of all human knowledge.

At the dawn of modern philosophy a newly emancipated and too sanguine reason proposed to know the whole of nature at once in terms of the Galilean mechanical physics. That which is profoundly characteristic of Descartes, Spinoza and Leibniz appears in its bare arrogance in the rationalistic naturalism of Hobbes. Philosophy is to be science swelled to world-proportions, simple, compact, conclusive and all-comprehensive. Philosophy proposes to do the work of science, but in its own grand manner. The last twenty years of Hobbes's life, spent in repeated discomfiture at the hands of Seth Ward, Wallis, Boyle and other scientific experts of the new Royal Society, certified conclusively to the failure of an *a priori* mechanical philosophy of nature. The experimental specialist thereupon took possession of the field of natural law. The epistemological investigations of the eighteenth century having made plain the dogmatism of the former *a priori* philosophy of nature, the idealist, in pursuance of the rationalistic motive, reconstructed nature to meet the demands of knowledge. There issued together with little mutual understanding and less sympathy, on the one hand positivism,

or dogmatic experimentalism, and on the other absolutism, or dogmatic idealism. Hume, who consigned to the flames all thought save 'abstract reasoning concerning quantity or number,' and 'experimental reasoning concerning matter of fact and existence'; Comte, who assigned metaphysics to an immature stage in the development of human intelligence; and Tyndall who reduced the philosophical consciousness to an emotional experience of mystery, are typical of the one attitude. The other is well exhibited in Schelling's reference to 'the blind and thoughtless mode of investigating nature which has become generally established since the corruption of philosophy by Bacon, and of physics by Boyle.' Dogmatic experimentalism and dogmatic idealism signify more or less consistently the abstract isolation of the scientific and philosophical motives. And there is already a touch of quaintness in both of these attitudes. We of the present are in the habit of acknowledging the autonomy of science, and the unimpeachable validity of the results of experimental research in so far as they are sanctioned by the consensus of experts. But at the same time we recognize the definiteness of the task of science, and the validity of such reservations as may be made from a higher critical point of view. Science is to be transcended in so far as it is understood as a whole. Philosophy is critically empirical; empirical, because it regards all bona fide descriptions of experience as knowledge; critical, because attentive to the conditions of both general and special knowledge. In terms of a critical empiricism, so defined, it is the function of philosophy *to define and appraise the generating problem of science*, and so to determine the value assignable to natural laws in the whole system of knowledge.

Though this is the program of contemporary philosophy of science, it is not uniformly and consistently adopted. Were its truth more clearly recognized, we should not be under the necessity of challenging such relapses into an obsolescent manner of thought as appear in the writings of James Ward and Karl Pearson. A considerable portion of Ward's notable book is conceived in a manner worthy of Hobbes. Not satisfied with confuting the dogmatic positivist, and partly for the sake of confuting him, the author indulges in considerable riddling of the conceptions of science. The reader is encouraged to believe that with a little more dialectic, Professor Ward could overthrow the whole system of science. There is something almost of resentment in his tone, as though the foeman were not worthy of his steel. But, in truth, philosophy presents a very sorry figure when she attacks the conceptions of science in a hostile spirit. Not only is it presumptuous for the amateur to show the specialist the error of his ways, but also humorous for the study

whose barrenness is somewhat notorious, to challenge the legitimacy of her neighbor's numerous and very healthy progeny. It is thus that philosophy from time to time waxes so sublime as to be ridiculous. 'Naturalism and Agnosticism' is a book of marked interest and value, but suffers from a radical defect in so far as it criticizes science negatively and not positively. For the philosopher there is properly no question of the truth or untruth of any scientific law or postulate, but only of the kind of truth that eventual consistency with other truth affords them. On the other hand, if anything could justify a vindictive and rancorous temper in philosophy, it would be Pearson's exhibition of the attitude of science. The 'Grammar of Science' contains a refutation of metaphysics in the superficial metaphysical manner peculiar to positivism. It is obvious that no conclusions can be drawn respecting the ultimate boundaries of knowledge, or the definition of all knowable reality in any exclusive terms, whether sensational or otherwise, without assuming the point of view and undertaking the problems of that historical discipline known as metaphysics. Were the positivist to think patiently about such problems, he might after considerable advancement come to an understanding of those metaphysical conceptions which he now overthrows with so light a heart. It is little short of amazing that he can deny in doctrine the validity of a question to which his very denial is an answer. Ward and Pearson furnish convenient illustrations of reactionary tendencies in contemporary philosophy of science. It is a question of some logical nicety which position is most untenable, that of the philosopher who refutes science in detail, or that of the scientist who refutes philosophy in general.

But how shall the specific function of philosophy be defined? Several possibilities may readily be excluded. In the first place, philosophy will not be all the sciences regarded as one science. Science tends to unify without any higher criticism. The various sciences already regard the one nature as their common object, and the one system of interdependent laws as their common achievement. The philosopher who tries to be all science at once fails ignominiously because he tries to replace the work of a specialist with the work of a dilettante; and if philosophy be identical with that body of truth accumulated and organized by the cooperative activity of scientific men, then philosophy is a name and there is no occasion for the existence of the philosopher as such. Secondly, philosophy will not be the aggregation of the sciences; for such would be a merely clerical work, and the philosopher would much better be regarded as non-existent than as a bookkeeper. Nor, thirdly, is philosophy an auxiliary discipline, that may be called

upon in emergencies for the solution of some baffling problem of science. A problem defined by science must be solved in the scientific manner. Science will accept no aid from the gods when engaged in her own campaign, but will fight it out according to her own principles of warfare. And so long as science moves in her own plane, she can acknowledge no permanent barriers. There is then no need of any superscientific research that shall replace, or piece together, or extend the work of science.

But there still remains a chance of escaping the conviction of naturalism. He who attends only to a given type of object, *A*, may look everywhere and will see either nothing or objects of that type. His chance of seeing anything else depends upon the possibility of correcting his attention. Suppose him merely to become aware of his own attention in respect of its singleness and definiteness. His conclusion as to the exhaustiveness of his search must now depend upon the legitimacy of identifying his original attention to *A* with attention in general. And apparently that possibility is already precluded, for he has now become aware of an object other than *A*, viz., attention-to-*A*, the attention to which condemns his previous attention to exclusiveness and incompleteness. The logical self-consciousness has now been awakened, and there is no honorable way of putting it to sleep again. But precisely this is what has taken place in our account of the generating problem of science. To define science is to define a realm that is inclusive of science, the realm of active intellectual endeavor. One can not reflect upon science and assign it an end and a method proper to that end, without bringing into the field of knowledge a broader field of experience than the field proper to science, broader, at any rate, by the presence in it of the scientific activity itself. Here, then, is the field proper to philosophy. The scientist *qua* scientist is intent upon his own determinate enterprise. The philosopher comes into being as one who is interested in observing what it is that the scientist is so intently doing. In taking this interest he has accepted as a field for investigation that which he would designate as the totality of interests or the inclusive experience. He can carry out his intention of defining the scientific attitude only by standing outside it, and determining by means of nothing less than an exhaustive searching out of all attitudes. Philosophy is, to be sure, itself a definite activity and an attitude, but an attitude required by definition to be conscious of itself, and, if you please, conscious of its own consciousness until its attitude shall have embraced in its object the very principle of attitudes. Philosophy defines itself and all other human tasks and interests. None have furnished clearer justifications of philosophy than those men of scientific predilections who

have claimed the title of agnostics. A good instance is furnished by Mach, who from some perversity chose to call his reflections 'anti-metaphysical.' 'Physical science,' he says, 'does not pretend to be a complete view of the world; it simply claims that it is working toward such a complete view in the future. The highest philosophy of the scientific investigator is precisely this toleration of an incomplete conception of the world, and the preference for it rather than an apparently perfect but inadequate conception.'¹ It is apparent that if one were to challenge such a statement the issue raised would at once be philosophical and not scientific. The problem here stated and answered requires for its solution the widest inclusiveness of view, and a peculiar interest in critical reflection and logical co-ordination.

But there is no little danger in such a logical approach to metaphysics. There are two types of error to which it has commonly led. In the first of these natural science is depreciated because its categories are not sufficiently ultimate, and reality is defined dialectically in terms of a supreme logical principle which ignores or annuls 'positive' knowledge. In the second case the category is condemned as such, because it is held to involve a *transformation* of reality. Both are transcendentalist philosophies, the former being the case of absolutism, the latter that of irrationalism. Professor Münsterberg's philosophy is a notable contemporary instance of the second type; and I offer a brief criticism of it for the sake of defining more clearly what seems to me to be a characteristic misconception, sufficient to vitiate an otherwise correct philosophical attitude to science.

In the 'Grundzüge der Psychologie' we are led by virtue of conscious attention to the deliberate transformations of science, to conceive of 'die reine Erfahrung,' the original realm of the appreciative practical attitudes of the will. The physical and psychical realm of natural science is held to be unreal because logical analysis discovers the purposive activity of the science to be more fundamental than its fruit. Moreover, in experience objects have their unity and individuality by virtue of their practical significance. In view of these facts, there is reason to conclude that will directed to ends is the determinative principle in reality, and so the most ultimate metaphysical category. But why on that account try to make reality out of it? Will as a principle, attitude or appreciation in general, may be legitimately arrived at in the progressive discovery of priority, but no one can remain in the contemplation of them and ever hope to say anything about reality. The most fundamental category, if taken alone, is just as abstract as any other category.

¹'Principles of Mechanics,' p. 464.

The conceptions that have been stripped away in the logical search for the central stem must be restored in the metaphysical construction. Hence it is the task of metaphysics in its search for reality, to show how space, and time, and physical and psychical objects, may belong to a reality that is fundamentally will. Professor Münsterberg has merely reasserted metaphysically the negations of logic. Reality is not spatial, temporal, physical or psychical, because these are transformations of reality. Reality is *that which* is so transformed. The scientific activity and its fruits are governed by logical necessity, but there is no evidence that reality is their native place. How is this any better than Schopenhauer's statement that the will gets itself objectified because it can not help it? To be sure, Professor Münsterberg tells us that the scientific transformation of reality is required by duty. But since duty can not here signify the compulsion of the individual will by the over-individual will, it can only mean the law of will in general. Then it is the proper problem of metaphysics to show how a world that is fundamentally will must be in some respects spatial, temporal, physical and psychical. Either the very program is a contradiction in terms, or it must mean that there can be no bare will, but only a world in which will is the determining conception. No noumenal world can ever generate a phenomenal world. Such a division can mean nothing unless that the phenomenal world is *true of* the noumenal world, but not exhaustively or fundamentally true of it. Science must be true of reality. It would possess a contradiction in its very heart if it were not so. It is not metaphysics to deny the reality of space and time, but to define their reality. No one has given a better definition of real time than has Professor Münsterberg himself in his account of it in the practical terms of irrevocableness, presence and expectancy. It is for metaphysics to reconcile this experience of time and the temporal order described by science. The whole difficulty seems to arise from the principle of transformation. Neither nature nor any other object of knowledge can be merely what is *made out of* reality. But nature may be abstract or partial truth. Science may well be an incomplete account of reality determined by considerations of a practical character. Reality will then stand in contrast to nature as the concrete to the abstract. Metaphysics must construct the reality that shall contain nature. Professor Münsterberg's error lies in conceiving reality to be experience prior to its transformation by science, rather than experience concrete and with compensation for the abstractness of science.

RALPH BARTON PERRY.

NOTES UPON LOGICAL TOPICS

II. THE MEANINGS OF THE TERM IDEA

IN this note I venture to set forth some results concerning the development of the meanings of the term 'idea' gained from reading Murray's Oxford Dictionary. I believe it will be found that the actual succession of meanings of this term put before us a life history of a thought which is quite as significant in its way as is the series of morphological changes gone through in the life history of any animal.

(1) The original and primary signification of the term is definitely objective. The word is a straight transliteration of the Platonic *ιδέα*. No psychological, not even a conceptual, sense attaches to the term. The idea is a real essence or substance of a spiritual as distinct from a material sort. But the Platonic idea is also, of course, an archetype, and as such serves the purpose of an exemplar and model. This sense introduces the subjective rift into the lute; and the further history of the term represents the evolution of this shade of meaning until as thoroughly psychical it dominates; and displaces, even not only the original ontological sense of spiritual essence, but apparently all objective reference.

A perfect archetype, being an ideal, serves to introduce (2) idea as the conception of an objective end to be realized—'the plan or design according to which something is created or constructed.' Here objective meaning is still dominant. The plan or design is not mental; it is a real plan of real construction which is meant, something, say, like the architect's design for a house. But there is now an easy road to a more subjective sense, since we have (3) the idea as a plan in the sense of *intention*, an attitude of consciousness to be fulfilled in the thing to be done or executed. The plan of the house need not be the objective scheme in accordance with the specifications of which the builder is working; it may be the notion of a house as a desirable thing suggesting itself in an inchoate condition and not yet having taken shape in any definite mode of construction. The volitional reference, however, is so marked as clearly to preserve objective import and reference; the objective is the goal, the object.

(4) Idea in Greek as well as in English means shape, image, figure. This meaning also is quite objective at the outset. A picture, for example, is an idea. So we have a quotation, as late as Skakespeare, to this effect—

"I do infer your lineaments, being the right idea of your father,
Both in your form and nobleness of mind."

Now let this sense of an objective picture or representation blend with the sense of idea as desirable end entertained as a purpose or intention, and we get a distinctly new turn of thought. Such fusion, moreover, is practically bound to occur, since in many cases the idea as intention (for instance, the entertaining the project of building a house) is sure to take the form of an image of the house which is wanted. Through this fusion there arises (5) the sense of idea which is probably the popularly current one at present: idea as a mental picture or representative of anything whatsoever, past, present or future. Here the meaning is, so to speak, just on the dividing line between the subjective and the objective. It is subjective in so far as the picture or representation is taken to be mental, part of the possessions of a personal life. But it is objective in content and reference. It is a mental scheme or portraiture of something or other. It is just *something* in the mind instead of in space. For example, the idea of a cow is, in the intellectual realm, just what the thing cow is in the physical—so, at least, it seems to naïve consciousness. The idea is subjective in existence, but not in import or worth. For certain purposes the idea is just as good as the real thing, and indeed under certain circumstances better. A picture is often a convenience where the thing of which it is a picture would be a nuisance. If the picture serves the purposes for which a picture is usually intended, we do not regard it as any reflection upon its reality or objectivity to say that it is just a picture. What else should it be? The greenback is not a beefsteak; it can not, like beefsteak, be eaten and so nourish the body; but it may be much more convenient and useful in the pocket than would be the beefsteak. Now it seems to me that to the naïve, non-philosophical consciousness, ideas are in just about such a situation as this. They are felt to be representatives of certain realities; thus they are not the realities of which they are representative. But they have a reality of their own, which, moreover, like that of the portrait, is just as good as, and for certain purposes better than, that of their originals or objectives.

But a portrait may be a poor one. It may misrepresent the original. Ideas frequently turn out to be misreports, misconceptions; they are mis-takings of the object; hence we get (6) the sense of *mere* idea; fancy as opposed to fact, chimera as opposed to solid thing. Here the subjective sense is peculiarly to the fore, but, after all, is prominent only because of an implied objective function and worth which the idea has failed to subserve. This meaning could not originate without at least a prior sense of objective worth which has failed in a given case to make good. Anyway, the idea now becomes something peculiarly and distinctively

mental. This meaning of idea as a product of pure mental activity, cut loose from any object, the idea as the affair of arbitrary imagination, seems historically to have been the transition to our next sense, (7) where the idea signifies any product of mental activity when so regarded, that is, *qua* mental. Or in dictionary phrase, the idea is 'an item of knowledge or belief as existing in the mind; a thought, conception, notion, way of thinking.' To conceive an idea as an item of knowledge existing in the mind or intellect is a remarkable achievement, the importance of which is disguised from us only by its familiarity and constant employ. As an item of knowledge, it must be objective in import. But as existing in the mind it is subjective. It is just a thought, a 'notion,' a fancy. It is (a) a way of thinking *objects*, but (b) it is only a *way of thinking*. Ideas in this sense become a tremendous resource for science. By this device we succeed in storing up, so to say, all the things and objects which we have known; and yet store them in such a way that we can readily discard them in case we find reason to suspect their validity, and can modify and transform them so far as further experience indicates the desirability of reconstruction. Ideas in this sense are past knowledge organized with special reference to its own correction, further verification, the taking in of new meanings, and for use as tools of discovery.

(8) But the matter of knowledge, the truth or fact, the plan, the original spiritual substance, is finally unambiguously 'in the mind.' It has to accept the coloring given to it by its new habitat and companions—which corrupt its naturally good (objective) manners. Now we have the full-fledged Lockean meaning. It is 'that term which serves best to stand for whatsoever is the object of the understanding when a man thinks.' It is used 'to express whatever is meant by phantasm, notion, species, or whatever it is that the mind can be employed about in thinking.' Thus Locke. The life history of the term has consummated itself. The idea is now a *subjective object* as such. That is to say, it is an object which is simply the construct and content of mental activity as such. The world of objects has not only passed over into mind so as to have certain representatives of itself there which can be manipulated and managed for the mind's own purposes; but it has got so completely domesticated in mind that its representatives there have lost all consciousness of their family relationships in the world of facts and truths. The idea sets up in business as itself an object, but an object of a peculiar and unique sort, the object of consciousness as consciousness, and only of 'consciousness'—mere mental entity. It is now a short cut to Hume's 'every distinct idea is a separate existence,' and to the denial

of all possibility of converse with things and of causal connections—since our only tools are just states of consciousness.

In leaving this summary, I will content myself with one question. Are there really and truly any such independent psychical entities as the Lockean ideas, or have we in ideas as just psychical simply a more adequate methodological device for facilitating and controlling knowledge—that is to say, acquaintance and transactions with objects? The account of ideas in James's 'Psychology' would, if the latter view be correct, give sense (9) of idea—the idea as a mental state for the sake of referring easily and fluidly to *any* object in *any* phase, and thus freeing and facilitating our intercourse with things. The idea as purely psychical is the object in solution, moving towards re-precipitation in some object which is more anticipated, which thus satisfies more, and hence has increase of meaning. Although wholly subjective, subjective is a phrase which refers to objectivity undergoing liberation from pre-committed, and hence limited, modes of significance, and by solution in the medium of personality getting varied worths.

JOHN DEWEY.

THE UNIVERSITY OF CHICAGO.

DISCUSSION

A REPLY TO DOCTOR SPAULDING

I HASTEN to reply to Dr. Spaulding's review of my 'Introduction to Systematic Philosophy,' because, if I understand him aright, fundamentally we agree. He takes issue with my theory of knowledge, I believe, simply because of my terminology. With him I certainly do maintain that knowledge is a process transcending itself. To explain, I use the term 'experience' in my preface (idealism 'limits all problems to the world of experience') simply as a shibboleth. I meant it in the sense in which Professor Ormond, if I mistake not, uses it in his 'Foundations of Knowledge.' This and other terms of idealism are unfortunate, but excusable. So, too, when I use the expression 'present consciousness' (with Hobhouse) for the 'given,' I think the term unfortunate, but pedagogically excusable. My task was to present the doctrine in such a way that the beginner might be gradually led from the familiar to the unfamiliar, from the more concrete to the more abstract. I feared to confuse him quite if I used high abstractions. I should much have preferred to drop all such terminology and, I think, thereby should have escaped just such misunderstanding on the part of the critical reader as that of Dr. Spaulding.¹

¹ My note on page 373 was intended to explain this.

The doctrine is better expressed as follows: All knowledge is an interpretation of the factual. The past, the future and the absent present, the minds of other men, etc., constitute an interpretation of the factual, the logically given. That is, the world extending indefinitely in space and time, the world of consciousness and of non-consciousness, of me and not-me, and all the rest has meaning ultimately only in terms of the factual. To me as well as to Dr. Spaulding all this seems a truism. None the less, it is well worth discussing and teaching, first, because it is a doctrine not lived up to, and secondly, because it is one of the outcomes of a great movement in the history of philosophy, *i. e.*, nominalism and English empiricism. The practical value of this doctrine is that it denounces all hypostasizing of abstractions, teaching, as it does, that the conceptual or any interpretation has meaning only in so far as it describes an aspect of the concrete or factual.²

Again about the *a priori*, I think that I agree with Dr. Spaulding.³ As knowledge grows it sees more clearly its presuppositions. It revises them over and over. Perhaps our present *a priori* tenets will have to undergo revision. Perhaps we have mistaken some for *a priori* that are not. Thus absolutism means not a claim to infallibility, but the belief in the complete logical priority of certain principles, and asserts that as long as those principles have this logical priority their authority is absolute. But to claim that they always will have this priority would be to lay claim to infallibility, first, in our analysis of knowledge, second, by maintaining that we know infallibly that knowledge will not outgrow its present categories. In short, absolutism and empirical-mindedness are not opposed, as some seem to think.

Regarding pragmatism, I am heart and soul in favor of it; but I am afraid that, like all other doctrines, it will become a narrow 'ism.' Knowledge must strive to be logical. We shall always need our Bradleys, and I can forgive the Hegelians if they think that the pragmatists do not know even what philosophy is. The logical aspect is philosophically as important as the pragmatic, and my book tries to be true to both aspects.

I confess frankly several of my chapters are too prolix. Again, in some chapters I have, I fear, made it hard for the critical reader by not showing where the philosophic problem ends and the problem of empirical science begins, *e. g.*, 'The Conservation of Mass and Motion,' and 'The Atomic Theory.' I wished to keep entirely clear of the dispute between the *Energetiker* and others as far as their

² It seems to me that all this is one of the chief points that Hobhouse makes in his 'Theory of Knowledge.'

³ I agree with Hobhouse, pp. 590-594.

problem is purely empirical, so, too, with other problems. In short, my search was for the *a priori* pure and simple, and therefore my defense of the atomic-mechanical theory meant to keep clear of all special problems and present speculations in physics and chemistry. My problem was, in what terms must human reason try to formulate its interpretation of nature in order to accept that interpretation as ultimate.

WALTER T. MARVIN.

WESTERN RESERVE UNIVERSITY.

ACCOMMODATION AND CONVERGENCE IN THE PERCEPTION OF DEPTH

IN the *Psychological Bulletin* of February 15 there appeared a review of my recent paper, 'The Influence of Accommodation and Convergence upon the Perception of Depth' (*American Journal of Psychology*, XIV., 1903, pp. 150 ff.). The reviewer has, unfortunately, failed to catch my meaning in several instances, a fact which might be attributed to my own lack of clearness of statement. But since Hillebrand, Arrer and Dixon meet a similar fate, and are equally misrepresented in the review, it seems clear that the fault lies rather with the reviewer than with the writer of the paper.

The review states (p. 86) that my paper 'gives a confirmation of substantially all the experimental results as such found in the three earlier investigations with substantially the same apparatus—by Hillebrand, Arrer and Dixon.' Now it is patent to every psychologist who has read the literature of the problem that a chief characteristic of the results of these investigators is their contradictory and irreconcilable character. I did not, for an obvious reason, confirm *both* of the contradictory contentions which are found in their publications. The miraculous power of reconciling irreconcilables, which the reviewer ascribes to my paper, I must in all modesty disclaim. That I did *not* confirm the results of Hillebrand is evident from the briefest survey of my tables and introspections.

It is no less clear from the literature that the various forms of apparatus which have been employed in the investigation of the problem are essentially different in principle. Even if the diagrams accompanying the papers in question did not furnish a clear envisagement of these differences, the extended discussions regarding the diversity of principle involved could scarcely have left the reviewer in doubt. Yet these diagrams, these discussions and my summary of the latter appear to have escaped his notice. It is manifestly impossible that my apparatus could have been 'substantially the same' as another which differed radically from it in principle.

That part of my paper which is devoted to the description of my

apparatus and method is 'open to the charge of needless repetition.' That it could be condensed, I freely grant; but in my desire to make myself understood by even the most cursory reader, I deemed it advisable not only to go into details, but also to refer the reader to Hillebrand's paper. Yet in spite of my 'needless repetition' the reviewer utterly fails to understand the construction of the apparatus. In discussing it he says: 'The eye localizes a black patch at a greater distance than a white' (p. 88). It is tolerably clear from Hillebrand's description, if not from my own, that what the eye fixates is neither a black patch nor is it at a greater distance than the white surface.

Notwithstanding the fact that I have combated the Hering-Hillebrand contention throughout, and have attempted to show cause for the rejection of the nativistic explanation *in toto*, the review imagines that I accept 'nativism as respects relative binocular localizations, while rejecting it for monocular vision' (p. 87). I fail to find any passage in the paper which can be interpreted as an 'acceptance of nativism,' even in such a half-hearted and wholly inconsistent manner as is ascribed to me.

There is no indication that the reviewer is joking when he jauntily outlines a program for future investigators (p. 87), evidently in blissful ignorance of the life and labors of Donders, Goldscheider, Wundt, Dixon and various other experimentalists. That he is hopelessly at sea, even as regards the rudiments of psychological space, is evident from his meaningless reference to 'irradiations' and 'range of accommodation' (p. 86).

It is bootless to particularize farther; and it were charity to refrain from a discussion of his criticisms. The review is not wholly futile, however, for it points out a misprint on page 177 of my paper. The passage should read '10 cm. in 7 sec.' Let me take this opportunity to say that 'Hering's bold statement' (p. 199, l. 2) should be corrected to read 'Hering's bald statement.'

J. W. BAIRD.

CORNELL UNIVERSITY.

REVIEWS AND ABSTRACTS OF LITERATURE

The Psychology of Child Development, with Introduction by John Dewey. IRVING KING. Chicago, The University of Chicago Press, 1903. Pp. xx + 265. Bibliography and Index.

The purpose of this book is, in the words of its author, 'to interpret, as far as possible, the phenomena of mental development from the point of view of functional psychology.' He attempts to carry out in the field of genetic psychology the ideas of which Professor Dewey is so notable a representative, and it is of interest to know that he has the endorsement

of the latter. According to both Professor Dewey and Mr. King the results of previous studies of childhood have usually been the collection of much genetic *material*, but the treatment of this has been such that 'the final effect and value, both psychological and pedagogical, have not been genetic.'

The book may, therefore, be regarded as the exposition of a theory of interpretation and the application of this to some of the material collected in the field of genetic psychology. The author does not attempt to enlarge our store of facts. He considers in turn the nature of early consciousness and the conditions of its development, early emotion, inhibition, imitation; the moral ideas of childhood, its interests, their development; and the characteristics of adolescence. Everywhere the theory appears that mental development is the result of an attempt to render our activity more effective through a clearer definition of its object. The functioning of consciousness is held to produce and guide its growth.

With this general notion I think we can hardly fail to agree. If we are properly to interpret the contents of the child's mind, we must understand what it tries to do, and we can derive our view of its notions and purposes only from a knowledge of the situation in which it has lived. In so far as such situations are common to all children our notions of childhood based on their study will be generally valid. I find it hard, however, to believe that the better psychologists in this field have ignored these considerations. But that Mr. King has offered some interesting suggestions as a result of their application can not be denied. As examples we may note the following contentions. Such reactions as in earliest infancy are often taken as signs of emotion are not such, the author thinks, because the child is not conscious of any objects at which the feelings are directed. Anger, for instance, directed at nobody or nothing is not the true emotion of anger. That the uncomfortable feeling caused by disagreeable stimuli plus the feeling of the reactionary bodily disturbances are all that the child experiences when it first acts as though it were angry, we may well believe. Some might be willing to call such an experience anger. Again, Mr. King says that while we as adults naturally suppose that the imitating child is from the first trying to copy, it is, in fact, only endeavoring to get a new experience. Here too I feel that the psychologists have not been so badly in error as Mr. King would have us believe.

The author summarizes the results of the literature on the interests of children. He endeavors to explain their development on the basis of his general theory. Here I feel that he frequently forgets his rule of interpreting the meaning of the child's acts from a knowledge of the *specific* condition under which they occur. For example, certain data in regard to children's ideals show that 35 per cent. of boys nine years of age chose their fathers' occupations as the ideal ones. Also at the age of thirteen a similar tendency appeared. Mr. King declares that in both cases the reason is that the children have reached an age of uncertainty in regard to their ability to cope with newly discovered conditions of

life, and consequently they fall back on an ideal that is backed by authority. He does not base his assured statement on any convincing array of facts in regard to the situations of the children who make this choice.

On the whole, therefore, I should regard the general theory of the book as sound, and its specific application to various phases of the mental growth of children as suggestive. I should hesitate to use Mr. King's volume to familiarize students with the materials yielded by work in genetic psychology, but I should undoubtedly wish to refer those who have been looking over these materials to his interpretation of them.

E. N. HENDERSON.

ADELPHI COLLEGE OF BROOKLYN.

Psychology and Common Life. FRANK SARGENT HOFFMAN, Ph.D., Professor of Psychology, Union College. New York, G. P. Putnam's Sons, 1903. Pp. 286.

The object of this book, as set forth by the writer, is 'to select the most important facts from the great mass of material now accumulated by students of psychical research, describe them in language easily apprehended by the general reader and point out their bearing upon the interests of everyday life.

It is quite possible to say that this object has in a general way been accomplished, and at the same time the result has but little interest for any but the general reader. While worked up with the requisite clearness and discrimination, it has none of the originality and suggestiveness which make the best popular works illuminating to the subject.

The selection of material is, however, good, except that, unless the author has taken the term psychical research in its limited meaning, the space given to the topics usually connected with this term is proportionately too large to make the book a fair presentation of psychology as a whole. Of the ten chapters only three are devoted to the fundamental topics of the science, while hallucinations, hypnotism, mental healing, mind-reading telepathy and multiple personality claim the other seven. The treatment of these topics is, however, of a nature to give the reader sane and scientific views of these phenomena, and this is accomplished without any undue digression into the technique of scientific evidence and method. In his entire treatment the author shows evidence of a thorough acquaintance with the literature of the subjects, and displays a noticeable felicity in selection and interpretation of illustrations.

Criticism from any other than the popular standpoint is perhaps uncalled for. Both selection of material and method of presentation should be judged from this point of view. At the same time one can not be wholly satisfied with any presentation of the science which, in order to be 'apprehended by the general reader,' tacitly admits the rightness of popular and uncritical notions of mental energy, attention, etc., and which, in its selection of material, makes no specific reference to the side of feeling and will, thereby tacitly confirming the popular mind in the identification of mind with its intellectual aspects. With these

limitations the book is a creditable piece of work and will undoubtedly find acceptance with those for whom it is intended.

WILBUR M. URBAN.

TRINITY COLLEGE.

Die reproduzierte Vorstellung beim Wiedererkennen und beim Vergleichen.

GAMBLE and CALKINS. *Zeitschrift für Psychologie und Physiologie der Sinnesorgane*, Vol. 32, pp. 177-199, and Vol. 33, pp. 161-170.

The authors repeated the experiments of Lehmann¹ with olfactory stimuli with the purpose of getting a conclusive answer to the question: 'Are recognition and comparison entirely constituted by associated images?' The answer was in the negative. The experiments consisted in getting the observers: (1) To report in the actual order of occurrence all the images evoked by any given olfactory stimulus; (2) to note any break in the train of images; (3) to say whether the odor was familiar or unfamiliar; and (4) to write down its name as soon as it occurred. The observers were three trained psychologists and twenty-one students without psychological training. Some of the observers began to take notes as soon as they perceived the stimulus, while others did not begin to write until their train of ideas had come to an end. The statistical results were as follows: In 7.2 per cent. of the experiments the observers reported 'unfamiliar' and had no images whatever; 3.6 per cent. of the odors were called 'unfamiliar' and were followed by a train of images that were all incorrect; while 6.2 per cent. were followed by a train of images at least one of which was correct. The word 'correct' referred to associations, olfactory or other, explicable by real similarity between smells or by earlier experience of the stimulus. There was a percentage of 4.3 of cases where 'familiar' was reported without any associated images whatever; 3.5 per cent. of the familiar stimuli were followed by incorrect images and 10 per cent. by correct images. The cases of familiar unnamed odors were divided according as the associations came distinctly later than the recognition, or were practically instantaneous. Of the total number of odors 3.5 per cent. were familiar and followed by correct associations; 10 per cent. were familiar and followed by incorrect associations; 7.1 per cent. of the total number of stimuli were unfamiliar and accompanied by correct associations, whereas 23.4 per cent. were unfamiliar and accompanied by incorrect associations.

The present experimenters urge three objections to the Lehmann theory (that recognition is constituted by supplementary images): (1) They find, it is true, very few cases of recognition without supplementary images, and are ready to admit that there may have been forgotten images in these cases; yet they insist that although the existence of associations can not be disproved in a given case of recognition, associations so vague as to escape notice can not constitute recognition. (2) They argue that the occurrence of supplementary images with unrecognized odors tends to discredit the theory that recognition consists in the presence of the supplementary images. But there were 35.5 per cent. of correct images

¹ Phil. Stud., 7, 169 ff.

and 21.2 per cent. of incorrect images as over against 42.3 per cent. without images in the whole number of unrecognized stimuli. (3) They point out that associations more often follow recognition than they precede or accompany it, which would seem impossible on the theory that recognition is made up of the associated images. In this last connection it was incidentally found that in the case of 15 out of 90 familiar, and in 2 out of 24 unfamiliar, stimuli the recognition was retarded. This is taken by the experimenters as an indirect proof against the statement of Lehmann that if recognition is immediate in the sense of existing without images, it must also be immediate in the sense of occurring without appreciable lapse of time after the perception of the stimulus. The cases of retarded recognition raise the question as to the content of consciousness during the time between the stimulus and the occurrence of the recognition. The present experimenters think that it is necessary to posit here a definite feeling of unfamiliarity.

Lehmann's supposition that the word image is of special importance for recognition is discredited by Misses Gamble and Calkins, who show that the name is more frequently the *terminus a quo* of a train of images than the *terminus ad quem*, although it is more frequently the *terminus ad quem* than the intermediate member of a series of associations, and that it is more frequently the only association than an intermediate member. Incidentally (p. 186) it is shown that the trained observers reported more reproductions than the untrained, and (p. 196) that the former, being more accustomed to think in abstract terms, have in general a greater tendency than the latter to name the stimulus.

Part II. of this research, on the influence of word images in the discrimination of the qualities of successive stimuli, was carried on with vials containing colored liquids and with colored papers, as visual stimuli, and with a series of olfactory stimuli. It was found that 'a scheme of names, logical or otherwise, was of some assistance to three fifths of our subjects in qualitative discrimination, but that this advantage was trifling; and yet that when one turns from the number to the direction of the errors, one finds that the name image seems to aid only in discrimination proper, and actually to increase the number of failures to identify.' These experiments corroborate the statement of Bentley² that gray and colored objects seen in daylight and reproduced tend to become lighter in the memory image; inasmuch as, in the visual series described in this article, the second stimulus was more frequently called darker than lighter. In this series of experiments the olfactory stimuli were richer in associated images than the visual, but these were largely olfactory images. It is noted, however, by the authors that 'by smell associations, smell names given either as wrong names for the stimuli or as ordinary associations are meant' (p. 188). The general conclusions of Part II. were: (1) The associated word images are essential neither for the consciousness of likeness, nor for that of unlikeness, but (2) that in experiments of this kind, the word images have a tendency to evoke a consciousness of unlikeness and to inhibit a consciousness of likeness.

² *Am. Journ. Psy.*, October, 1899.

It seems to me that in these experiments the impossibility of really knowing whether or not the subject has ever experienced any given stimulus before, makes the results of very little value. The answers, or associations, of the observers are reckoned as right or wrong according as the experimenter thinks that the observer could or could not have smelled the same smell before. If the smell was perceived by a person when five years old and then after the lapse of twenty years, it would be highly improbable that the olfactory disposition should retain its individuality for so long a time.

The question as to the image theory of recognition is whether images are necessary to the recognition or not. This could easily be answered in the negative by reflecting: (1) That there are many persons who never have any images at all, and who certainly could not be accused of never recognizing anything; (2) that there are many occasions, even in the life of introspectively inclined persons, when they are not in the least conscious of images of any kind, and yet go on cognizing and recognizing all the time; and (3) that in the above question a distinction should be made between supraliminal and subliminal images. Evidently most psychologists have meant subliminal images, *i. e.*, dispositions. In that case the experiments of Lehmann, and of Gamble and Calkins, in so far as they record *supraliminal* images, are all well enough, but when they state that recognition is possible without them, they are not touching the real point at all. What is really left to prove is that the *subliminal* images constitute the recognition, a point which is not considered by them. They have to prove that *subliminal* images do not constitute the recognition, and that is not susceptible to proof by the methods of Lehmann and Gamble and Calkins, because in recording the *supraliminal* images they are omitting the *subliminal* images all the time. Of course it is impossible to get any experience of *subliminal* images, because the moment we are conscious of them they cease to be *subliminal* and we know not what they do when they are, so to speak, out of sight. I see nothing in the two articles of Lehmann and of Gamble and Calkins that throws any light on the question as to whether recognition is constituted by *subliminal* images.

The positive arguments, from the data of consciousness, all seem to me in favor of a *Bekanntheitsqualität*, which quality is not a quality of the thing recognized, but is a quality of the content of consciousness, and seems to me to belong, more than any other class, to the class of conscious qualities which we call organic sensations. WILFRID LAY.

NEW YORK CITY.

Proverbial Morality. ROBERT A. DUFF. *International Journal of Ethics*, January, 1904, pp. 172-179.

This is a plea for the value and importance of so-called 'proverbial morality.' By it we are to understand 'maxims of conduct which have reached the dignity of expression in a popular phrase.' They are the common saws of ordinary parlance. As such they have claims to be regarded as expressive of the earliest reflective morality; they represent the

highest degree attained by many persons; and they have a vitality and permanence which merit something other than the neglect which they have received.

Proverbs have certain definite characteristics. They are negative in their caution and restraint by representing vividly the results of injudicious or evil conduct. Hence they often smack of pessimism and appear cynical. Their negative character, too, affords them the advantage of being on the winning side. Yet they are not general truths. They only appear so. Their form and matter are inconsistent. They really give expression to some one aspect of life. They have not breadth of outlook, but rather precision of illustration. How, then, have these narrow and partial proverbs retained their hold? It is due, says the author, to their 'many-sidedness and catholicity,' on the one hand, and to their 'unsystematic character,' on the other. They represent not tendencies, but diversities of experience. The representation, moreover, is often self-contradictory. This might appear fatal; but self-consistency is not an invariable requisite of efficiency nor is it a representation of the complexity of moral problems. Hence the real service of proverbs. They are conservative; they help to maintain balance and sanity. They have also been positive in preventing stagnation and adherence to half-truths. Even though the morality be not always of the highest, it is comprehensive and corrective. There is, therefore, available material here to assist in the formulation of a theory designed to meet the needs of humanity.

The field to which the author has here drawn attention is a neglected one. Aside from the proverbs extracted from the Bible and folk-lore, and the *sententiæ* of the classical writers, hundreds of these proverbs came in through the emblem and epigram writers of the sixteenth and seventeenth centuries, and from the poets as well. A considerable portion of instruction in morals at this time was imparted by means of maxims presenting the virtues of civil, political and religious life. The effect of this instruction on morality has not as yet been estimated. Such an historical investigation would certainly contribute to the history, possibly to the theory, of ethics.

ARTHUR H. R. FAIRCHILD.

YALE UNIVERSITY.

La morale de Renouvier. A. DARLU. *Revue de Metaphysique et de Morale*, January, 1904, pp. 1-18.

This article is one of a group by different writers shortly to be published in separate book form under the general title 'Les idées morales contemporaines.' It is itself a review of Renouvier's two-volume work, 'La science de la morale,' which appeared in 1869. M. Darlu points out the close relationship of Renouvier to the ideas of the French Revolution—emphasis on liberty, individualism and personalism; a virtual *contract* which the *reasoning* mind makes in recognizing the equal rights of other persons and which gives the basis for justice; the right of combat because minds are not always reasonable, etc. He dwells at some length upon Renouvier's application of his principles to economics, where duty is

defined as an obligation to labor and a right is a credit upon the labor of others, and where Renouvier is kept from substituting the word labor everywhere for the word duty only, as he himself says, in order to remain in line 'with a respectable tradition which the Kantian ethics re-established in its purity.' Renouvier finds the remedy for injustice and for the state of war, not in reform laws, but in bringing every separate individual of the whole mass to a sense of justice.

GEO. R. MONTGOMERY.

YALE UNIVERSITY.

JOURNALS AND NEW BOOKS

MIND. January, 1904, N. S., No. 49. *The Definition of Will (III.)* (pp. 1-37): F. H. BRADLEY.—In this article, the last of a series, the author desires to test his definition of will as 'the self-realization of a tendency with which the self is identified,' by considering those cases to which this definition might seem least applicable. To this end he discusses imperative, disjunctive and negative types of volition, and the relation of will to conation, desire, pleasure and pain. The so-called different types of volition are successively shown to differ in the ideas willed rather than in the acts of willing. Thus 'imperative volition' is the *indicative* willing of an imperative; 'disjunctive volition' the categorical willing of a disjunctive idea; 'negative volition' the affirmative willing of a negation (*i. e.*, a destruction or removal) of something. Will is wrongly supposed to depend in its essence upon conation, desire, pleasure and pain. For there are cases of will which involve none of these, and even if they have been necessary for the origin of will it does not follow that they enter into its nature. Moreover, they in no way explain the mechanism will, which is rather to be explained by the supposition of natural or acquired *dispositions*, which are started into activity by ideal suggestions. *The Relations of Metaphysics to Ethics* (pp. 38-53): W. H. FAIRBROTHER.—"Are the ethical doctrines taught by the more important writers in this subject derived from, or traceable to, their respective metaphysical beliefs? or (2) *in abstracto*, is the subject matter of Moral Science of such a kind that it is necessarily affected by our belief as to the ultimate nature of man and the Universe?" The writer concerns himself mainly with the first question. He shows that Plato and Green explicitly, and Kant, Spencer, Stephen and Mill implicitly, base their theory of what ought to be on their theory of what is. On the other hand, the eighteenth-century moralists seem to confine their ethical inquiries to the nature and origin of the moral sentiments actually possessed. But their ethical theories are for that very reason regarded as unsatisfactory. The only legitimate basis for making ethics independent of metaphysics is that 'our knowledge of reality is not complete enough to enable us to deductively demonstrate the multifarious detail to which answers must be given and practically acted upon in daily life.' *Kant's Transcendental Idealism (II.)* (pp. 54-71): C. M. WALSH.—"This paper does not advocate the adoption of the Transcend-

ental Realism rejected by Kant. It attempts merely to show that in rejecting this theory and in setting up his own Kant did not have clear and distinct ideas about the subjects of which he was treating. It attempts to show that Kant was confused in his theory of Empirical Realism or conception of an outside world, which his critics have generally been willing to accept, as much as in his conception of things in themselves, which his critics have generally repudiated. It attempts to show that Kant did not present to philosophy a new consistent metaphysical view of the world able to rank with those already founded; but that he brought forth only a muddled and ambiguous conglomeration, which when clarified resolves itself into one or another of the older views."

Professor Adamson's Philosophical Lectures (pp. 72-99): G. DAWES HICKS.—This paper, called forth by the recently published volume of Professor Adamson's Lectures, edited by Professor Sorley, is devoted to a sympathetic discussion of Professor Adamson's philosophy, particularly to the difference between its earlier and later stages. "A two-fold development seems clearly traceable in his thinking. On the one hand, he appears to have advanced farther and farther from the view according to which psychology is to be regarded as a purely empirical or natural science, on the other hand, he appears to have been brought more and more to the belief that underlying philosophical empiricism or Naturalism was to be discerned a fundamental principle as to the nature of knowledge which seemed to him of the utmost significance and value." Critical Notices:—J. Dewey, *Studies in Logical Theory*: F. C. S. SCHILLER. R. Flint, *Agnosticism*: S. H. MELLONE. A. Riehl, *Zur Einführung in die Philosophie der Gegenwart*: H. W. BLUNT. F. H. Hayward, *The Reform of Moral and Biblical Education on the Lines of Herbartianism, Critical Thought, and the Ethical Needs of the Present Day*: FOSTER WATSON. A. Binet, *L'Étude Expérimentale de l'Intelligence*: J. L. MCINTYRE. New Books. Philosophical periodicals. Notes:—*Professor Bain*: W. L. DAVIDSON. Mind Association: Full List of Officers and Members. News and Correspondence.

THE JOURNAL OF COMPARATIVE NEUROLOGY AND PSYCHOLOGY. March, 1904, Vol. XIV., No. 1. *The Relation of the Motor Endings on the Muscle of the Frog to Neighboring Structures* (pp. 1-16): JOHN GORDON WILSON.—A histological study of the breaking up and disappearance in the muscle fibers of the terminal nerve fibrils, the variations in the arrangement of the nerve endings with their fibrils and their relationship to the sarcolemma. (2 Plates.) *Space Perception of Tortoises* (pp. 17-26): ROBERT M. YERKES.—A comparative experimental study of the reactions of tortoises to space (when placed on an elevated board) in relation to their habits. 'Hesitation in the presence of a void' increases as we pass from aquatic to terrestrial forms, and 'total inhibition' appears at a much lower elevation for land species. Blind-folded tortoises were tested to determine the 'spatial worth of sense data,' showing that visual impressions are a prime, though not an exclusive factor. *A Note on the Significance of the Form and Contents*

of the Nucleus in the Spinal Ganglion Cells of the Fœtal Rat (pp. 27-48): SHINKISHI HATAI. - In early embryonic life, Nissl granules 'are derived either by the diffusion of the nucleins from the nucleus or by a migration of the accessory nucleoli into the cytoplasm'; the materials for the formation of the nuclein 'are collected from the periphery of the cell body to the center of the centrosome by means of the astral rays,' thence, through these rays, to nuclear pseudopodia, by which they are absorbed into the nucleus. In the adult condition the nucleins pass from nucleus to cytoplasm by diffusion, chiefly at the poles. (2 Plates.) *An Establishment of Association in Hermit Crabs, Eupagurus longicarpus* (pp. 49-61): E. G. SPAULDING. - Experiments show that the species studied "is capable of profiting by experience, in a rather short time, by associating the 'constructs' of two 'sense fields,' vision and taste," the association being effective in 'subsequently bringing about, with only one stimulus presented, the same reaction against a natural positive heliotropism,' an unfavorable case for acquisition from the start. The question of the representative character of the influence of the associated stimulus is raised. *Editorial, L'Envoi*: C. L. HERRICK, R. M. YERKES. *The Mid-winter Meetings. Literary Notices*: John B. Watson, Animal Education, ROBERT YERKES. A. Forel, papers on comparative psychology, H. HEATH BAWDEN. Edouard Claparède, *The Consciousness of Animals*, J. CARLETON BELL. E. L. Thorndike, *Educational Psychology*, H. HEATH BAWDEN. Reviews of Articles. Plates.

AMERICAN JOURNAL OF PSYCHOLOGY. Vol. XV., No. 1, January, 1904. *A Theory of Time Perception* (pp. 1-14): W. P. MONTAGUE. - The paper aims to define the specious or extended present of perceptual time so that it will be seen to be consistent with the unextended present of real time. The formula is based upon the fact that a ratio of infinitesimals can be itself finite. It is verified by application to the phenomena of duration and succession, rate of time-flow, rhythm, memory, familiarity, simultaneous origin of a time form and its contents. *Auditory Tests* (pp. 15-56): B. R. ANDREWS. - A discussion of the methods now in use for testing auditory acuity. The spoken word is preferred to the simple sound, tone or syllable because of its apperceptive value. After reviewing the factors necessary to make a good word test, he selects a number of numerals which are to be whispered at such a distance that they are just recognized by the observer. *Some New Apparatus* (pp. 57-61): E. B. TITCHENER. - Description and pictures of a new Whipple gasometer, a frame for adaptation and color images, a contrast frame, a six-fold color mixer, a wall campimeter, and a disk cutter. *Ebbinghaus's Explanation of Beats* (pp. 62-71): BENTLEY AND TITCHENER. - Beats are probably correlated with cochlear vibrations which repeat with more or less fidelity the resultant from two pendular vibration rates. *The Proof and Measurement of Association between Two Things* (pp. 72-101): C. SPEARMAN. - A valuable contribution to the methods of estimating correlation. A formula is derived for treating correlations of rank, and also for eliminating the errors due to constant over- or under-

estimations in assigning the rank of an individual. *Professor Cattell's Statistics of American Psychologists* (pp. 102-103). I. W. BENTLEY. Comments on Professor Cattell's method. *Nocturnal Emissions* (pp. 104-107). - A somewhat statistical study of the author's experience for several years.

ZEITSCHRIFT FÜR PSYCHOLOGIE, etc. January 5, 1904, Bd. XXXIII, Hft. 6. *Die Empfindlichkeit des Ohres* (pp. 401-423): H. ZWAARDEMAKER. - By the use of tuning-forks for the lower tones and Galton's whistle for the higher, the amount of energy required to produce a just perceptible tone was measured. Much less energy was required in the middle than towards the ends of the tonal scale. The absolute measures obtained were very much larger than those of Wien; sources of error in Wien's determinations. *Zur Psychophysiologie der Mundhöhle, etc.* (pp. 424-443): F. KIESOW. - A defense, against Wundt, of the author's previous statement that the pain-free spots of the inner surface of the cheek are sensitive to pressure. The defense consists in the application to these spots of pressures, which, though so light that they could not spread to neighboring regions, yet were sensed. *Zur Frage nach der Fortpflanzungsgeschwindigkeit der Erregung im sensiblen Nerven des Menschen* (pp. 444-452): F. KIESOW. - A repetition, on a small scale, of the work of DOLLEY AND CATTELL (to whom, however, no reference is made), in determining the velocity of a sensory impulse. The result gave 30-32 meters per second in the one subject tested. *Ein Beitrag zur Frage nach den Reaktionszeiten der Geschmacksempfindungen* (pp. 453-461): F. KIESOW. - An area of the tongue-tip was stimulated by strong solutions. The reaction times were: to sodium chloride, 307 σ ; to cane sugar, 446 σ ; to hydrochloric acid, 536 σ ; to quinine sulphate, 1081 σ . Criticism of the much shorter values obtained by von Vintschgau and Hönigschmied from some subjects. *Literature*, pp. 462-472.

ANNALEN DER NATURPHILOSOPHIE. November, 1903. III., 1. *Das Raumproblem* (pp. 1-23): F. HAUSDORFF. - The space of experience is essentially Euclidean; its axioms should receive criticism from deductive geometry, Euclidean or other. The latter requires certain empirical axioms, and rejects others; it is not subject to verification by intuition, which is an individual, psychological matter. A bibliography follows. *Über Begriffsbildung und Werturteile in der Geschichte* (pp. 24-70): B. SCHMEIDLER. - Rickert rightly says that history is the arrangement of individuals in a continuous development, but errs in limiting historical material to what can be grouped under one system of evaluation. Such evaluation is a practical matter that does not concern the historian as such. All his facts, however, must be subsumed under a system of ultimate concepts to include all the permanent aspects of human nature. *Beiträge zur Selektionstheorie* (pp. 71-95): C. VON EHRENFELS. - The objections to Darwin's theory of the increase of useful variations through selection result from his failure to define 'useful.' He meant a variety that favorably influenced the capacity of the organism. Thus under-

stood, such increase is not only possible, but necessary. *Das Salto-mortale des Gedankens* (pp. 96-110): E. SOKAL. - The distinction between physical and psychical only has meaning in connection with the ultimate impossibility of perceiving the consciousness of another. The sun and a toothache are thus distinguished because in the case of the former, the 'mortal leap,' analogical interpretation of one mind by another, is more exactly determinable. *Über kausale und finale Erklärung* (pp. 111-117): WOLFGANG OSTWALD und W. BLOSSFELDT. - Causal explanation brings a particular event under a concept. Each science has a concept which may be described as its 'Endoberbegriff.' Through this the causal is referred to a final explanation. *Critical Notices*, by W. O. - *Gott. Religion*: A. ELEUTHEROPOULOS. *Suggestion und Hypnotismus in der Völkerpsychologie*: O. STOLL. *Naturalism and Agnosticism: The Gifford Lectures delivered before the University of Aberdeen, 1896-8*: J. WARD. - *Nietzsches Lehre in ihren Grundbegriffen*: O. EWALD. - *Fechners Metaphysik*: R. LIEBE.

ARCHIV FÜR GESCHICHTE DER PHILOSOPHIE. January, 1904, Band X., Heft 2. *Weitere Beiträge zur Lebensgeschichte George Berkeleys* (pp. 159-170): T. LORENZ. - Three unaddressed letters, two of which the article reproduces, are identified as interesting replies from Berkeley to Jean Leclerc, relative to the latter's criticisms of 'The Principles of Human Knowledge,' and 'The Theory of Vision.' *Sur une prétendue faute de raisonnement que Descartes aurait commise* (pp. 171-175): J. CHAZOTTES. - The fault lies with the critic. Descartes' demonstration did, as he supposed, in fact anticipate Galileo's formulation of the law of falling bodies. *Locke, eine kritische Untersuchung der Ideen des Liberalismus und des Ursprungs nationalökonomischer Anschauungsformen* (pp. 176-195): G. JAEGER. - New light is thrown on the worth of these ideas when viewed as the offspring of Locke's scepticism and intellectualism. Locke is contrasted with Luther. *Entwicklung der arabischen und jüdischen Philosophie im Mittelalter* (pp. 196-236): J. POLLAK. - The analogy between the two movements is traced in some detail. Philosophy is not of native growth in either Judaism or Islam, but in neither is it mere imitation. *Die Lehre von der Bildung des Universums bei Descartes* (pp. 237-271): A. HOFFMAN. - The return of Renaissance thought to Lucretian atomism is exhibited, and the development of the rotation theory by Bruno and Kepler. Descartes developed the theory of the homogeneity of atoms on epistemological grounds, and substantiated it through his analytical geometry. His glimpse of the principle of the differential calculus suggested an interpretation of qualitative changes. *Jahresbericht über die deutsche Literatur zur nacharistotelischen Philosophie* (pp. 275-287): A. DYROFF. - Particular attention is given to the critic's own work, 'Die Ethik der Alten Stoa.' Latest issues in the domain of the history of philosophy.

VIERTELJAHRSSCHRIFT FÜR WISSENSCHAFTLICHE PHILOSOPHIE UND SOCIOLOGIE. XXVII., 4. *Skizze der sozialökonomischen Geschichtsauffassung* (II., pp. 369-431): FRANZ OPPEN-

HEIMER. — History is essentially social-economic, in that it really tells of nothing but the struggle for a standard of distribution of the economic medium, work. The principle of social movement is not self-interest, but movement to diminish social-economic pressure along the line of least resistance. *Über die zeitlichen Verhältnisse in der Sinneswahrnehmung* (II., *Schluss.*, pp. 415–428): R. MÜLLER. — Sensation is not in the subject, but is external. The unity of extended sensations is the outer world. The universality in knowledge is not to be attributed to God, or to things-in-themselves, or to the knowing subject; but to the ultimate fact of a compulsion (Zwang) in sensation and perception. Extension, both spatial and temporal, is the property of perception, not of sensation; time can adequately be reproduced in the idea. *Zu Herders 100. Todestage* (pp. 429–451): P. BARTH. — Herder was a true though unsystematic psychologist, thereby freeing himself from the intellectualism of the 'Enlightenment.' Hence his rejection of Kant's critical epistemology. In the philosophy of esthetics, of language and of history his work was epoch-making. *Critical Notices*: Gennaro Mondaini, *La questione dei negri nella storia e nella società nord-americana con prefazione del Prof. Enrico Morselli Torino Fratelli Bocca*: P. BARTH. L. Favre, *L'organisation de la science*: GIESSLER. S. S. Laurie, *Metaphysica Nova et Vetusta*: GIESSLER. A. Meinong, *Über Annahmen*: P. LINKE. J. Royce, *The World and the Individual; Second Series*: H. SCHWARZ. B. Russel, *A Critical Exposition of the Philosophy of Leibniz*: H. SCHWARZ. Kant, *Gesammelte Schriften*; herausgegeben von der Königlich preussischen Akademie der Wissenschaften: R. RICHTER. W. Ostwald, *Vorlesungen über Naturphilosophie*: GIESSLER. *Erklärung* (pp. 478–480): P. BARTH. Philosophische Zeitschriften. Bibliographie.

REVUE DE PHILOSOPHIE. January, 1904. 4e. Année, No. 1. (pp. 1–136). *La Science et l'Esprit scientifique* (pp. 1–22): G. MICHELET. — The new positivism or philosophy of action, due to Poincaré, Duhem, Milhaud, Tannery, Boutroux and Bergson is one-sided and quite as metaphysical as any other doctrine. The source of truth lies not in our construction but in intuition which is of an objectively real. *Fénelon Metaphysicien* (*Oeuvres inédites*) (pp. 23–50): E. GRISELLE. — This gives the test of Fénelon's third letter on divers subjects of metaphysics and religion (*a suivre*). *L'Institution internationale de Sociologie et Congrès de 1903* (pp. 51–52). Discussion of the relations of sociology and psychology: titles of papers. *Analyses et Comptes Rendues* (pp. 53–80). I. *History of Philosophy*: P. Lemaire, *Le Cartésianisme chez les Bénédictins: Dom Robert Desgabets* (Paris, 1903): A. Humbert. R. Allier, *La Philosophie d'Ernest Renan* (Paris, 1903): V. Biéatrix. II. *Psychology*: Vaschide et Vurpas, *Essai sur la Psycho-physiology des monstres humains* (Paris, 1903): E. D. Dr. Surbled, *La Vie de Jeune Homme* (Paris, 1903): J. D'Estienne. Dr. Surbled, *La Vie de Jeune Fille* (Paris, 1903): J. D'Estienne. E. Cuyer, *La Mimique* (Paris, 1903): E. A. de Gourmont, *Physique de l'Amours* (Paris, 1903): T. de Visan. E. Tardieu, *L'Ennui* (Paris, 1903): E. A. H. Temmermann, *Notions de Psychologie appliquée*

a la Pédagogie etc. (Paris, 1903): E. A. III. *Esthetics*: W. Schinz, *Le Problème de la Tragédie en Allemagne* (Paris, 1903): V. Biétrix. IV. General: A. Sabatier, *Philosophie de l'effort* (Paris, 1903): E. Baron. L'Abbé Birot et al., *Conférences pour le temps Présent* (Paris, 1903): V. Biétrix. A. Coste: *Dieu et l'Âme*. V. Biétrix. J. Noé, *Recherches sur la Vie oscillante* (Paris, 1903): B. Périodiques Italiens. Sommaires des Revues. Bulletin of Philosophic Education. Philosophic education in the Universities. Nominations in the Universities. Meeting of the *Agrégation de Philosophie*, 1903, 1904. Nécrologie.

Dorner, A. *Grundriss der Religionsphilosophie*. Leipzig: Dürr'schen Buchhandlung. 1903. 8vo. xviii + 448 pp. 8.50 m.

Duprat, C. L. *Morals: A Treatise on the Psycho-sociological Bases of Ethics*. Translated by W. J. Greenstreet. The Contemporary Science Series. London: Walter Scott. New York: Charles Scribner's Sons. 1903. 12mo. xvi + 382 pp. \$1.50.

Halpern, I. *Schleirmachers Dialektik*. Berlin: Mayer & Müller. 1903. 8vo. xxxvii + 463 pp. 6 m.

Hudson, Thomas J. *The Evolution of the Soul and Other Essays*. Chicago: A. C. McClurg & Co. 1904. 12mo. xiv + 344 pp. \$1.20.

Leibniz, G. W. *Hauptschriften zur Grundlegung der Philosophie*. Übersetzt von Dr. A. Buchenau. Leipzig: Dürr'schen Buchhandlung. 1904. 12mo. 374 pp. 3.60 m.

Oehler, Richard. *Friedrich Nietzsche und die Vorsokratiker*. Leipzig: Dürr'schen Buchhandlung. 1904. 8vo. viii + 167 pp. 3.50 m.

Stern, William. *Beiträge zur Psychologie der Aussage: die Aussage als geistige Leistung und als Verhörsproduct*. Leipzig: Barth. 1904. 8vo. iv + 147 pp. 5 m.

Van Becelaere, L. *La Philosophie en Amérique depuis les Origines jusqu'à nos Jours (1607-1900)*. New York: The Eclectic Publishing Company. 1904. xvii + 180 pp. \$1.50, postage 12 c.

Wandschneider, Albrecht. *Die Metaphysik Benekes*. Berlin: Ernst Siegfried Mittler & Sohn. 1903. 8vo. iv + 155 pp. 2.50 m.

Windelband, W. *Die Geschichte der neuen Philosophie*. Leipzig: Breitkopf & Härtel. 1904. Band I. x + 588 pp. Band II. vi + 409 pp. 18 m.

Wulf, M. de. *Introduction à la philosophie neo-scholastique*. Paris: Alcan. 1904. 5 fr.

Wundt, W. *Grundriss der Psychologie*. 6 auflage. Leipzig: Engelmann. 1904. xvi + 408 pp. 7 m.

Wundt, W. *Einleitung in die Philosophie*. 1904. xviii + 471 pp. 9 m.

NOTES AND NEWS

THE first of the Jowett Lectures for 1904 was delivered by Dr. J. Ellis McTaggart, at the Passmore Edwards Settlement, London. We reprint the following account from the *London Times*: "There was a large at-

tendance, among those present being Mrs. Humphry Ward. Taking as the subject of his opening discourse 'An introduction to the study of philosophy,' the lecturer pointed out that there was no agreement about the conclusions of metaphysics, as the most eminent experts differ completely. The consequence of this was that no one had the right to accept any conclusion of metaphysics which he had not arrived at himself. The object of his lectures was to induce people to think for themselves on the subject of metaphysics. He did not wish to recommend his own views for acceptance, but to place before his audience the various conflicting views now entertained. He might define metaphysics as the systematic study of the ultimate nature of reality. Metaphysics and philosophy meant very much the same thing, except that philosophy also included ethics, which he might define as the systematic study of the ultimately desirable. Dealing with the difference between metaphysics and religion, he said that religion was not as metaphysics was, simply a system of knowledge. Religion was a form of, or at any rate included, emotion, and rested on a system of propositions which was usually called theology. But all propositions of theology dealt with metaphysical subjects; the whole field of theology was, in fact, nothing but the field of metaphysics. Speaking of the relation of metaphysics to science, he pointed out that science was the systematic study of the nature of reality, whereas metaphysics was the systematic study of the ultimate nature of reality. Metaphysics dealt with the general principles which were common to all sciences, but there were subjects dealt with in metaphysics which were not dealt with in science at all. As to the utility of the study of metaphysics, he pointed out that its utility was usually justified on the ground that it was helpful in a person's actions. He, however, did not think it gave much guidance in action in any direction, if at all. The practical utility of metaphysics rested not in its giving any guidance in action, but in the comfort it afforded in helping to give pleasure and avoid pain. As education advanced, so interest in the deeper and wider problems of the universe increased, and the desire to reflect became more widespread. At the conclusion of the lecture, on the motion of Mrs. Humphry Ward, a vote of thanks was passed to Professor Butcher for presiding."

WITH the present volume, *The Journal of Comparative Neurology* appears under the changed title of *The Journal of Comparative Neurology and Psychology*, with a corresponding enlargement of its scope, to include the publication of articles on the comparative physiology of the nervous system and on animal behavior, as well as purely morphological articles, whereby it is hoped to emphasize the intimate relation between the study of structure and the study of function, and to secure more cooperation among workers in these cognate fields than has obtained hitherto. The editorial board, as reorganized, consists of Dr. C. L. Herrick, Professor C. Judson Herrick, of Denison University, *Manager*, and Dr. Robert M. Yerkes, of Harvard University, associated with Dr. Oliver S. Strong, of Columbia University, and Professor Herbert S. Jennings, of the University of Pennsylvania, and assisted by a representative staff

of collaborators, including students of comparative and genetic psychology. The journal is to be issued bimonthly from Denison University, Granville, Ohio. We print an abstract of the March number on page 189.

THE editor of the *Königsberger Hartung'sche Zeitung* has received from Mr. A. J. Balfour the following contribution to the jubilee number of that journal, issued in connection with the one-hundredth anniversary of the death of Kant: "Königsberg does well to keep alive every memory connected with the great man whose writings opened a new epoch in the development of philosophy. I am proud to think that, though Kant was a 'German of the Germans,' his ancestors were countrymen of my own, so that Scotland may have something more than a strictly philosophic interest in the perpetuation of his memory."

THE SOCIETY FOR PHILOSOPHICAL INQUIRY (Washington, D. C.) devoted its meeting of February 16 to the Kant Centennial. Papers were read by the President of the society, Professor J. Macbride Sterrett, on Neo-Kantianism; by Mr. Wm. M. Coleman on Kant's Political Doctrines; by Professor Edw. S. Steele on Kant's Logic, and by Rev. Dr. Frank Sewall on Kant's Transcendental Idealism.

THE Appunn wire forks, for the determination of the lower limit of audition, may now be obtained from E. Zimmermann, of Leipzig. A set of five forks (8, 20, 30, 40, 56 vs.) may be procured for Mk. 37.50; the separate forks for Mk. 7.50 each. Forks of any required number of vibrations can be furnished to order.

DOCTOR GEORGE R. MONTGOMERY, Lecturer in Philosophy in Yale, author of 'The Place of Values' (1903), translator of Leibniz's 'Metaphysics' (2d Ed., 1903), has accepted a call to the Professorship in Philosophy in Carleton College, Northfield, Minn. He will enter upon his duties in September.

DR. SHEPHERD IVORY FRANZ, of Dartmouth College, has accepted a research position as physiologist at the McLean Hospital for the Insane, at Waverly, Mass. He expects to continue his researches on the physiology of the brain, and to start work on the physiological conditions of insanity.

PROFESSOR KUNO FISCHER, of Heidelberg, will not retire, as has been announced, but offers this summer four lectures a week on 'The History of Modern Philosophy.'

PROFESSOR EUGENE W. LYMAN, of Carleton College, Northfield, Minn., has accepted a call to the chair of apologetics in a denominational college in Montreal.

DR. TH. ZIEHEN, of Halle, has been called to the chair of psychiatry at Berlin vacated by the death of Dr. F. Jolly.

DR. AUGUST DÖRING, titular professor of philosophy at Berlin, has celebrated his seventieth birthday.

THE JOURNAL OF PHILOSOPHY

PSYCHOLOGY AND SCIENTIFIC METHODS

THE SOCIAL STANDPOINT

THE social standpoint is not wholly a recent discovery. Not to refer to ancient thought, Leibniz constructed a universe on the analogy of a 'kingdom.' Kant, by his transfer of the categories from the sphere of pure ontology to that of validity (Royce), made an important step in the direction of a social standpoint, for although his 'universality' was not based on the number of observers and reasoners, he did, in the case of esthetic universality at least, distinctly raise the question how an '*allgemeine Sinn*' could be formed, and sought an answer in the fact of social conversation. We should naturally think also of the British moralists and the German idealists. The 'herding instinct' of Shaftesbury, the 'pliability' assigned by Mandeville as the medium for social influence, the 'sympathy' of Hume and Smith, the 'imitation' of Hartley—all suggest present terminology as well as present problems, although the analytic method of mathematics and physics determined in some cases the mode of approach. The German idealists, starting from the problem of freedom, went on to consider the development of the individual mind and of human institutions as the logical moments in the unfolding of complete freedom—of absolute mind; but the social causes of the process were not studied; psychology had not freed itself sufficiently to be able to take up its own problems, nor had the utilitarian and later ethical movements added their content to the conception of social welfare.

The present prominence of social problems, social categories and social standards is doubtless due, to a considerable extent, to an increasing appreciation of an even more rapidly increasing influence of the social medium, whether of the past through tradition education and the other media of 'social heredity,' or of the present through the greater massing of humanity and through the increased facilities for interchange of persons, goods and ideas. The pressure toward cities is economic as well as gregarious in its motives. But the economic wants themselves which urge toward city life are

largely created by social suggestion, the means for satisfying them exist largely because of the presence of masses of people living together and because of a more democratic diffusion of opportunities for education and amusement, and finally the possibility of satisfying these wants is brought more vividly to general attention through present agencies. The economic, while it *may* be 'egoistic' in its aim, is social in cause and content. Economic standards of value are determined less and less by the organic wants for food, shelter and clothing, more and more by social suggestion and demand. Economic value is given to land by the very residence of large numbers in its vicinity; it is given to certain commodities by the elevation in standard of living due to greater intelligence and other social causes; and the owner of the land or the producer of the other commodities may not have contributed in the slightest toward the value of which he receives the benefit.

The bearing of these facts upon economics and ethics is apparent, although it has by no means received full recognition as yet. The bearing upon the psychology of the self is no less obvious. The increasing social influence, both from past and from present agencies, is not only enlarging and strengthening what James calls the 'social self' (it would have saved us from ambiguities if James had used a different term for this, so that the term social might have been left free for application to certain aspects of all the 'selves'), it is also transforming the content of material and spiritual selves—of the material self along lines already indicated, of the spiritual self along lines to be suggested below. The mode of functioning as well as the content is also affected, as Baldwin and others have shown. Perhaps the present danger is that we take the processes of imitation and social influence too simply, as Locke took his processes of sensation. Is there not to be worked out in detail a theory of apperception in the relation of the individual to the social influences, just as we have gradually worked out such a theory in the case of visual perception?

An ambiguity in the use of the term social calls for notice. In the looser sense social may be applied to relations between individuals. Any interchange of ideas, any influence of one by another, implies some ultimate community of intelligence, interest or sphere, and may, therefore, be loosely termed social, and studied by 'social psychology.' But in a more restricted sense the term may be limited to the activity of a group as such. The group may be a group of two, and but of momentary duration, but there is for the time some unity of interest or sentiment which makes the group as such a force in the life of each member. The psychology of this group influence is highly significant for ethics and the philosophy of law.

For the individual, having developed as a member of a group—clan, family, state, village or religious community—has constant experience of group standards and group authority, and feels the stress of group motives, simply because a large part of his activities are for common or group ends, and are performed in ways prescribed or suggested by the tradition or opinion of the group. From conflicting interests and under highly complex forces emerge the consciously selfish or altruistic purpose, the asserted or recognized rights, the reflective jealousy or sympathy, but in them all is the pressure of a more than individual authority or claim which asserts its power ultimately as moral control.

In applied ethics the influence of the social upon theory as well as upon practice is no less marked. The old virtues of thrift and charity are rudely challenged. Trades-unions form groups which present ethical phases strikingly analogous to political groups at the tribal stage—or, indeed, to our present states in their international relations, which are confessedly only very partially moral.* Within the union there is a 'loyalty,' a solidarity, and a genuine self-sacrifice on the part of the naturally capable members, which are entirely comparable to the patriotic devotion of clansman or citizen. The man who seeks to better himself by leaving the union, or who actively or passively interferes with union success, is regarded very much as were the 'tories' and 'copperheads.' The study of group ethics in economic as well as in political groups helps to a juster estimate of the values and limitations in each. The question 'what virtue is of most worth' is brought forcibly to consciousness by present conditions.

The conception of justice is also in a state of flux. When thrift was regarded as an unquestionable if not a supreme virtue, any possible acquisition not involving violence or fraud was accepted as a just reward. By giving a portion in charity the acquirer could experience joyously how much better it is to give than to receive. Now that the social factor in the production of wealth is being dimly recognized, the masses feel the inequality as well as the discomfort; the conscientious man of privilege feels a scruple about accepting education, art, wealth, opportunity of every sort, in such superlative measure. It is not merely that he feels bound to devote them to public service as his own immediate way of paying his debt; he wonders whether, if justice prevailed, some of the others might not have the opportunity for serving the public in such wise, and of enjoying the experience of personal independence in greater degree.¹

¹ On the relation between social and individual ethics, Jane Addams 'Democracy and Social Ethics': Compare chap. v. in Armstrong's 'Transitional Eras in Thought,' New York, 1904.

I have noted in the *American Journal of Sociology* for January an interesting attempt to give the new conception of justice a form capable of legal use. The suggestion is to give the concept 'social debt' a legal as well as an ethical standing.

The philosophy of religion has been similarly affected. If the distinguishing mark of religion as contrasted with magic is found in the social relation between gods and people, we are in a position to interpret ancestor worship and similar facts in a way to show their ethical significance. The religious sanction of morality is seen to be rooted in intrinsic relations. The distinctive religious attitudes and sentiments may be analyzed and interpreted in a manner which supplements the classic interpretations of Kant, Schleiermacher and Hegel.

Of the social standpoint in esthetics I have written elsewhere.² Metaphysics might seem at first blush an unpromising field, but since Kant we have learned that reality, if known at all, must be known through categories; and if certain of these categories which give us a 'world of description' are themselves due to social influence, as Royce has maintained, the theory of knowledge is affected by the social standpoint in a fundamental manner. Accepting as in some sense true Kant's principle that the unity of self-consciousness is the ultimate principle of logic, we have still to ask how that demand for unity has been developed to the height found in the scientific mind. Assuming also with Kant that an irreversible sequence is the cue on the basis of which the mind interprets a connection as objective, we may yet seek additional factors in the consciousness of objectivity. The elements of objectivity in logical, ethical and esthetical judgments have their sources, in part at least, in the pressure of a social environment or the necessity of social communication.

JAMES H. TUFTS.

THE UNIVERSITY OF CHICAGO.

RECENT LITERATURE ON SCHOLASTIC PHILOSOPHY

FOR the reader who is not interested in the details of mediæval biography, bibliography and textual criticism, the most important articles on scholastic philosophy are those which discuss the scholastic system as a whole, or those which treat of some general phase or problem of scholasticism. The article by Professor Alfred H. Lloyd, of the University of Michigan, in the *International Journal of Ethics*, July, 1902, 'Scholars of the Cloister: a Defence,' is

² *Philosophical Review*, January, 1903.

a plea for a more intelligent appreciation of the schoolmen. The very least that can be said in favor of the study of scholastic philosophy is that it possesses that interest which all historically important events possess for the reflecting mind. Indeed, the conviction that all history is fundamentally one, that, although the accidentals have changed, the essentials of human development—the forces which make or mar human progress—are always the same, is one of the established principles of contemporary historical science. It may be said that there is no longer recognized a rigid line of demarcation between ancient, mediæval and modern. The problems, at least the most vital problems, of philosophy are always with us; and, while the circumstances in which they present themselves to us are new, the solution of them is, in our day, determined by the same helps and by the same obstacles which aided and hindered the work of the philosopher in ancient or in mediæval times. To this extent, at least, there exists a continuity between the speculation of the thirteenth century monk and that of the twentieth century philosopher; and the more we reflect the more apparent it becomes that the modern academic spirit is not so far from kinship with the spirit of the cloister as we commonly suppose. Even when we recognize that the modern spirit is less trammelled in its researches, we shall be forced to admit that it is to some extent hampered by the restrictions which arise from the cultivation of ‘systems’ and from loyalty to the traditions of ‘schools.’

In an article entitled ‘Scholastic and Mediæval Philosophy,’ published in *Archiv. f. Gesch. der Phil.*, Bd. XV., Heft I, (1902), Dr. Lindsay gives a general survey of mediæval speculation, in which he rightly distinguishes between *scholasticism* and the various systems of anti-scholastic *mediæval* philosophy. One is inclined, however, to question many of his assertions, for instance, that ‘scholasticism is less a system than a chaotic compound of all systems—a compound marked by a preference for judgment over facts, and for authority before reason.’ The ‘*fides quærens intellectum*,’ as expressed in the more common formula ‘*Credo ut intelligam*,’ was, indeed, a phase of scholastic thought, and was represented in its highest form in the philosophy of St. Anselm; but there was another and an equally important phase of scholasticism, which found expression in the formula ‘*Intelligo ut credam*’—a peculiar form of rationalism, represented in the initial stages of the movement by Roscelin and Abelard, and never wholly obliterated by the mysticism of their successors. It was the union of these two phases, the rational and the mystic, that constituted the special excellence of the scholasticism of the thirteenth century. Abelard no less than Anselm prepared the way for Albert and St. Thomas, and Dr. Lind-

say does less than justice to the author of 'Yea and Nay' when he writes that 'scholasticism, even in its early developments, was stoutly opposed by Abelard.' Dr. Lindsay is convinced that 'the modern contempt for scholasticism is exceedingly misplaced.' Is there ground for hoping that contempt will yield to intelligent appreciation so long as statements like the following from Dr. Lindsay's own article are accepted as accurate: 'Scholasticism is the doctrine of the church scientifically set forth'; 'Both Thomas and Duns Scotus held, each in his own way, to the doctrine of intelligible species, by which a copy of the object was supposed, in the process of knowledge, to arise and be seen by the soul'?

If scholasticism is all that its defenders claim that it is, why and how did it so quickly yield to modern modes of thought? Why did it fail to adapt itself to the scientific discoveries which ushered in the modern era? Dr. Lindsay truly says that 'the modern contempt for scholasticism has been an affectation inherited from the Renaissance.' But why should the Renaissance affect to despise scholasticism? The answer to these questions involves the study of the causes which led to the decay and dissolution of scholasticism in the fifteenth and sixteenth centuries. To this study M. de Wulf, of the University of Louvain, devotes an article, 'La décadence de la scolastique à la fin du moyen âge,' in a recent number of *La Revue Néo-scholastique* (November, 1903). According to M. de Wulf, we should bear in mind that when we speak of the 'downfall' of scholasticism, there are certain reservations to be made, namely: (1) Although there was, at the beginning of the fifteenth century, a general revulsion of thought from the methods and conclusions of scholasticism, there flourished throughout that and the following centuries an important revival of scholasticism, especially in Spain and Portugal; (2) there never was a direct, and, so to speak, a single-handed encounter between mediæval philosophy and modern philosophy; the issue was complicated by a variety of circumstances, personal, social, political, religious, so that in the contest between mediæval and modern modes of thought philosophy was merely an incident. Scholasticism was worsted in its struggle with humanism, secularism, scientific discovery and religious revolt. When, therefore, Cartesianism entered the lists, it encountered there, not the vigorous scholasticism of the thirteenth century masters, but the decrepid and discredited philosophy of the later scholastics, who had foresworn the fundamental principles of their predecessors. This may seem like an attempt to defend scholasticism at the expense of the scholastics; yet, an examination of the condition of philosophy at the beginning of the fifteenth century will result in a confirmation of M. de Wulf's verdict. The style, severe, yet lucid,

of St. Thomas and his contemporaries had given place to the barbaric Latin of the Thomists and Scotists; the method of the schools was vitiated by a recrudescence of the 'dialectic madness' of the days of Abelard; an era of master-worship and 'ipse-dixitism' had been inaugurated; the fundamental scholastic doctrines of matter and form, intentional species, etc., had been distorted into the most fantastic theories; essence, potency and quality were adduced as sufficient explanations of all natural phenomena; so that it was easy for the humanist, keenly alive to the humor of the situation, to laugh away the last shred of respectability that hung to scholasticism. Molière's 'quia habet vim dormitivam' and similar jibes were only too well justified by the actual state of scholastic philosophy in the age immediately preceding the modern era. 'Summo otio abundantes, atque ingenio acres, lectione autem, impares' is Francis Bacon's description of the scholastics, as he knew them: men eager to know, yet unwilling to learn, too lazy to read, yet keenly intent on exercising their argumentative powers.

Similarly, in the contest with the representatives of the new science, there were on the side of the scientists enthusiasm, enlightenment, and not a little arrogance; on the side of the scholastics there were indolence, lack of information and, ever and always, the inclination to argue. Here M. de Wulf makes a distinction, on which he rightly insists, with little hope, however, of convincing those who are sceptical on the subject of the adaptability of scholasticism to modern conditions. There was, he maintains, no contradiction between the *essential* tenets of scholastic philosophy and the scientific discoveries of the new era. The contradiction, indeed, between the astronomy, physics, and chemistry of the new era and the scholastic doctrines regarding celestial and terrestrial matter he does not attempt to deny. He contends, however, that the schoolmen should have yielded these points as *non-essential*; they should have remembered that St. Thomas himself regarded the astronomical theories of the ancients as a hypothesis, not as a thesis, and that St. Bonaventure was prepared to admit that the earth may possibly not be the center of the universe; and if it is true that Melancthon refused to look through a telescope, the scholastics should have recollected that they were the intellectual heirs of Aristotle, Albert and Roger Bacon, who, in their times, neglected not to avail themselves of every contrivance that was calculated to increase their knowledge of nature's laws. Instead of doing this, the scholastics clung to their ill-founded abstractions and inaccurate traditions, and, fearing that if a single stone were removed from the Aristotelian structure the whole edifice would crumble, they acted as if every assault on the physical system of the ancients were an attack on the most

vital doctrines of scholastic philosophy. The scientists were equally to blame inasmuch as they, too, failed to distinguish between the accidentals and the essentials of scholasticism, imagining that when they had disproved the physical doctrines of the schoolmen they had reason to reject also the psychology and the metaphysics of the schools. M. de Wulf concludes with a plea for a reconsideration of the sentence which the modern world has passed on scholasticism. The question is still debatable: neither the uncouth terminology, nor the false method, nor the maladroit tactics of its defenders should prejudice the case of scholastic philosophy, which in the persons of its neo-scholastic representatives pleads for a fair hearing.

The most noteworthy recent attempt to restore scholasticism, the movement inaugurated in the Catholic schools during the last quarter of the nineteenth century, receives attention at the hands of Professor Josiah Royce in an article entitled 'Pope Leo's Philosophical Movement and its Relation to Modern Thought,' published in the *Boston Evening Transcript* July 29, 1903, and republished in the *Review of Catholic Pedagogy*, December, 1903. Professor Royce has a singularly clear insight into the intent and purpose of a movement which is often misunderstood. He perceives that the aim of the originators of the movement was not so much to restore St. Thomas to his preeminence as the typical representative of scholasticism, as to secure for his original works a place too often taken by text-books which more or less unintelligently represented Catholic tradition and often misrepresented the doctrines of St. Thomas. He sees, too, that the purpose of the neo-scholastics is not merely to revive the study of the mediæval masters in their original texts, but also to bring the principles of scholasticism to bear on contemporary problems, to take cognizance of the ascertained results of modern scientific inquiry, to discard such tenets of scholasticism as have been proved to be false—in a word, to modify scholasticism by 'increasing and perfecting the old by means of the new.' As an 'outsider' he has no particular interest in gaining controversial victories over Catholics or in winning them to his own ideas; but he is interested in whatever tends to help them take part in the common intellectual life of the time. This, he thinks, the neo-scholastic movement is doing: it is bringing its adherents under the influence of the spirit as well as under that of the letter of St. Thomas's teaching; it has already resulted in a 'distinct increase of active cooperation on the part of Catholic scholars in the relatively neutral tasks of modern science and scholarship'; it has brought about a great increase in the understanding and appreciation of philosophers like Kant, whom it was formerly the fashion to dismiss with contempt; it has made for fairness, gentleness, thoroughness, and, therefore,

for scholarship. From this verdict of one who calls himself 'an outsider' few who view these matters from the inside will be inclined to dissent. M. de Wulf would certainly endorse everything Professor Royce has said; however, the Louvain professor would, probably, point out that what, according to the Harvard professor, the neo-scholastics have accomplished should have been the program of the scholastics of the fifteenth century. But what of the outlook for neo-scholasticism? Professor Royce emphasises, perhaps unduly emphasises, the modernization which scholasticism is certain to undergo at the hands of its latest exponents if the movement is allowed to continue unchecked. It seems to the present writer that at this point M. de Wulf would introduce his distinction between *essential* and *non-essential* and would insist that if the neo-scholastic movement is to make consistent progress it must hold to all the essential elements of the scholastic system, while modifying that system in points which are merely accidental.

During the years 1902 and 1903, the *Revue Néo-scholastique* published two articles by M. Meuffels and one by Count Domet de Vorges on the question, In what language shall scholastic philosophy be taught? The discussion is summed up in an article, 'The Language of the Schools,' in the current *Dublin Review* (January, 1904) by Rev. Francis Aveling. The question is mainly of pedagogical interest. There is, however, especially in the last-mentioned article, a discussion of the origin and growth of scholastic terminology which will be of interest to the general student of philosophy. The schoolmen did much towards fixing the meaning of many of our philosophical terms, and, however much we may deplore the time some of them lost in useless word-chopping, we must give them credit for their efforts in the matter of determining the exact meaning of technical words and phrases.

The influence of Arabian and Jewish speculation on the development of scholasticism in the thirteenth century is a question to which much attention is being directed at the present time. In the current number of the *Archiv. f. Gesch. der Philosophie* (Neue Folge, Bd. X., Heft 2; January, 1904), Dr. Pollak of Prague describes the general course of philosophical speculation among the Arabians in an article entitled 'Entwicklung der arabischen und jüdischen Philosophie im Mittelalter.' He calls attention to the various judgments passed on Arabian philosophy both as to its intrinsic value and as to its influence on Christian thought, and very strongly urges the consideration of the linguistic difficulties incident to the study of this philosophy. If we are to avoid the mistakes into which the first historians of Arabian philosophy were betrayed by their lack of philological knowledge, we must prepare the way for

a scholarly appreciation of Arabian and Jewish philosophy by comparing a whole set of Greek with the corresponding set of Syriac, Arabic and Hebrew terms, paying attention to the word-form as well as to the content, or meaning, of the word. We must not be satisfied with describing Arabian philosophy as 'Aristotelianism interpreted by the aid of neo-Platonic commentaries'; we must endeavor to ascertain how it synthesized these elements, how much it owes to Aristotle, how much to Plato and the Platonists, and how much to the speculative activity of the Arabian mind itself. The writer lays stress on this last factor, and by means of it explains the fact that, of all the Greeks, Aristotle came to be the favorite author among the Arabians, because his philosophy best suited the practical, empirical, tendency of the Arabian mind—apparently, the writer here overlooks the choice which the Syrian Nestorians and Jacobites, the first teachers of the Arabians, had already made in preferring Aristotle, 'the father of heresies,' as some of the Patristic writers call him, to Plato, the philosopher chosen by the orthodox Christians.

Developing this last point, the native element in Arabian philosophy, Dr. Pollak finds that even in Mahomet's day the Arabians were interested in the nature-study of the Syrian and Jewish scholars who dwelt among them as physicians and teachers. He traces the speculative efforts of the Motacallimin and Motazelites, who, even before the introduction of Greek philosophy, occupied themselves with the discussion of the philosophical aspects of the religious teaching of the Koran. Perhaps the most important point which he makes is his characterization of the translations which were made in the ninth century and continued down to the time of Avicenna and Averroes to be the versions officially recognized by Arabian scholars. These translations, besides being mere slavish, word-for-word, versions of the Syriac text, were dominated by the neo-Platonic ideas of the Syrian commentators, Iamblichus, Porphyry, Syrianus and Damascius. Even the greatest of the Arabian commentators on Aristotle accepted these versions—a fact which sufficiently explains the confusion surrounding the Averroistic interpretation of the Aristotelian doctrine concerning the νοῦς ποιεῖν.

After having traced the course of Arabian speculation through its various phases—purely theoretical interest, practical (religious) interest, scepticism, mysticism and return to Aristotle—Dr. Pollak concludes that, as we must not overestimate the intrinsic value of Arabian philosophy, so we must not underestimate its influence. That influence, he finds—especially the influence of the Arabian attempt to unite nature-study with philosophy—continued even

after the schoolmen had found in the Greek text an immediate source of knowledge of Aristotle's teachings, and appears not only in the writings of the last of the schoolmen, but also in those of the first representatives of the learning of the new era.

WILLIAM TURNER.

ST. PAUL SEMINARY, ST. PAUL, MINN.

DISCUSSION

THE STANDPOINT OF INSTRUMENTAL LOGIC

THE recent Logical Studies from the University of Chicago represent a somewhat notable contribution to American philosophy on several accounts. I wish here to consider the philosophical standpoint of the book from one side simply, in so far as it represents a protest against realism and ontology.

Briefly speaking, this standpoint makes, apparently, functional psychology supreme, for logic, and for philosophy in general. Thinking arises in a given psychological situation, and its relevancy is entirely limited to that situation. Thing and idea are reducible to the phases in this tensional experience which we call thinking, relative to one another, and to the situation in which they appear. Truth is to be put in terms wholly of the success which thinking has in leading up to a new experience, no longer torn by internal dissensions, but marked by immediacy of satisfaction. On the negative side, this denies outright any validity to the conception of an independent world of things to which thought points. The question of the relation of thought to reality in the traditional sense is entirely unmeaning. The material of our thought looks back to nothing save to the preceding experience out of which the difficulty that leads to thinking originates. The reference of thought is to nothing save the new integrating experience to which it leads. Objectivity is only a peculiar constitutive aspect attaching to a special stage of experience, at the period when experience is being reconstituted. The whole point of view represents a new positivism—not, of course, that the name condemns it—simplified by the abandonment as unmeaning of any unknown universe against which as a background human life is set.

It is not necessary to deny the relative value of this point of view. And the truth there is in it makes a polemic against the position more or less difficult to carry out. Every distinction that an objector may introduce can be shown to have a psychological genesis. And so if one simply sticks to the assumption that point-

ing out the teleological function of anything in the psychological process is the final word of explanation, he has an answer to make to every possible objection, which is satisfactory to himself, and fits perfectly into his own point of view. But the defect of the book, from the standpoint of convincing doubters, is just this, that it fails to address itself to, or even recognize the least plausibility in, the reasons which may lead to the questioning of its whole assumption. The only justification of the assumption which it attempts takes the form of showing how it simplifies the answers to certain logical questions. This is, of course, good so far as it goes. But if it simply involves throwing out of court as illegitimate most of the questions which have represented difficulties in the past, it may easily appear to be a purely artificial simplification. Of course if it could be shown that the problems were set merely by a logical entanglement, a failure to see clearly the abstract bearings of one's assumptions, there would be nothing to say. But I venture to think it goes back of this—that the difference lies in certain estimates based on prejudices that are too obstinate for mere logical analysis to reach effectively, and that are supposed to have a real value for life.

Of course the most obvious difficulty to be brought up in the way of holding that there exists no problem about the relation of thought to reality, is due to the persistence of the common-sense belief that there is a real world of some sort prior to human experience, on which this depends. I shall only stop to assert, in the first place, that the discrepancy really is there, in spite of attempts to obscure it. And furthermore, when one really sets before him the alternatives, I must confess, at the risk of appearing unphilosophical, that I can not understand at all how anybody, however indoctrinated in modern critical idealism, can fail to feel the burden of the problem, or to recognize that his results, no matter how well fortified by argument, are out of line with our whole natural instincts of belief. I submit that no ingenuity can make such a belief seem to our natural thinking a mere logical absurdity, and the problem which it involves an unreal one. And to have been so sophisticated as to be no longer able to appreciate the force which it has to the natural mind is a philosophical loss. A theory which holds that the stars, *e. g.*, and every reality for which the stars stand, come into existence with the human need which leads to their discovery, or that the earth really was flat, in any valid sense of the word real, so long as men found it satisfactory to believe it so, which denies, in a word, any meaning to the reality of an encircling universe in which our human experience and our human thought are set, may represent the fact, but it has no right to minimize its

paradoxical character. And the time has not yet come to take it as an assured result of philosophy. It may be perfectly true that there is a teleological aspect in our perception of the thunder whose sound breaks in upon us, or of the wild beast which suddenly confronts our path. But that the intrusion is a mere outgrowth of the previous experience, I for one find it quite impossible to realize. Of course one may say that this is simply an ultimate mystery of experience, which, overweighted somehow, has the power of budding forth in these unexpected ways. And it is true that difficulties which call for the thought process do sometimes arise, *e. g.*, in ethical situations, largely after this fashion, as the outcome of the development of experience itself. But it is another thing to apply this explanation to the newly appearing physical facts, particularly those which come upon us unexpectedly. In their case, I find it vastly more natural to suppose, with the common run of men, that the intrusion actually does arise from some outside source, which had as such no definite relationship in psychological terms to the previous flow of my life, although doubtless the *recognition* of it involves some activity of mine.

Now this may be merely the instinctive prejudice of the unconverted realist; even then it merits, it appears to me, a more sympathetic treatment. However, it may be said that, apart from the difficulty of getting away from it, the belief represents no special value for life. I do not think this is true. When we bring this conception of a real world into connection with the religious attitude, its possible value is not hard to see; and I think it could be shown to possess, similarly, a value for less ultimate experiences. But it is, at any rate, not difficult to understand that one might find a loss of value in giving up the independent reality of persons. This, however, seems to follow equally. If a thing has no reality apart from the function it plays in leading to some experience, so a person is nothing save as he helps to a unitary social experience of mine. I use the last two words because personally I do not see any other outcome; but I will speak further of this presently. Now I seem to myself, on the contrary, to believe that my friend has, at the time of the very stage in experience when I am thinking of him, a reality of his own apart from the thought which, referring to him, makes him useful in a further immediate experience of mine, and apart from this later experience as well. I seem to myself to know what this independent reality is to which my thought only refers, and I most emphatically seem to find this independence essential to the value of the social experience.

However much this issue may be beclouded, it appears to me perfectly clear and straightforward. I suppose that the way in

which it would be met would be by denying that the experience is merely mine. I have only space to make a very brief comment on this solution. To repeat, in the first place, the problem. If I look back to something that I call a social experience—say, a tennis match—I find myself necessarily interpreting it in terms of a number of psychological series. Each person engaged has his own experience, which differs in part from that of any one else. If now I take some single common feature of the game, it is indeed capable of a functional psychological explanation. But the trouble is that it is capable of four such explanations, one in the case of each player. The recognition of a certain situation enters at one and the same moment into four psychological experiences, and grows out of conditions which are in each case at least partially different. If this way of looking at the matter is a delusion, at least it is a singularly insistent one. And accordingly, a theory such as I am considering can not be held to have justified itself, at least it will never convince doubters, until it has a clear answer ready for this question: How, if the final explanation of any fact is in terms of a functional psychology, are we to break the force of this common-sense belief that a psychological experience is always the experience of an individual. Just how are we to understand the way in which what we look back upon as different experiences can be united in a single psychological experience, and so become only aspects or stages of experience in the large, when they started out by seeming to be parallel series?

Since the theory in question has no disposition to make the common appeal to a *deus ex machinâ* in the shape of a supposed absolute experience, the possibilities of a solution are narrowed down. And the only understanding I can get of an answer is this: Every phase of experience is itself simply. It is not to be identified with any other phase. This of course necessarily follows from the psychological point of view. The perception of an axe is not, as experience, the axe as used. The perception of the friend is not the experience of the friend in social intercourse. The thought of the game is not the experience of playing. Now the real characteristics of a given reality are only its characteristics as experienced. We can not attribute to it the characteristics of a different phase of experience, just because it is different. So the fact that, when we think of it, the game of tennis falls into a group of distinguished phases, need not mean that the game itself was not felt as a psychological unity; it was so felt. Similarly of the assigning of any experience to a self. The self psychologically is only a peculiar aspect of experience, when we make a certain special reference. But this reference itself is intended to lead to a further experience

in which the subject-object relation is overcome; and therefore this later experience—illustrated by the active playing of the game—is not *my* experience at all. This, as I understand it, is the way in which the theory would escape the charge of solipsism.

I have only two things to say of this attitude. In the first place, I can not at all understand how the position is to be carried out consistently, without destroying the possibility of thinking altogether. Of course my thought of a past experience is not itself the past experience. But unless I can in my thought really refer to the experience now past, and recognize characteristics that actually belonged to it in itself, I fail to see how I am to get ahead at all. Of course this would involve the same transcendence in thought, and the same problem of a relation of thought to a reality in some sense outside it, that is denied to be possible. The validity of the present thought is, according to the theory, absolutely exhausted in its present functional value. The past experience was psychologically quite distinct, and therefore I can not now know it, but can only pass through a present thinking experience which is simply itself functioning. But I can not make it clear to myself that this is not the abandonment of philosophy. To state the theory intelligibly, it is constantly necessary to assume that I can thus refer back to past experiences as real, and know what they contained. I never could say that thought leads to an immediate active experiencing, if I did not assume it possible for thought to get away from itself as a special phase of experience, and to postulate a real identity between the past experience which it thinks, and the reference in the present thinking experience. Otherwise, since the immediate experience is not itself a knowing experience, it never could be known or talked about. And if I can know certain characteristics as really present in another past experience, although my present knowing experience does not possess them, so, on the other hand, a characteristic which I find no way of ignoring when I think of such a past reality, I must suppose really belonged to it—the complex of experiences in the tennis game was, *e. g.*, a real fact, and sets a real problem not yet met.

The other point is this, once again: The whole force of the answer depends upon assuming the point at issue. The reply to the charge of solipsism is only good on the supposition that the psychological standpoint is supreme; if one is unable to accept this as a complete statement, it will still seem to him that the reply evades the whole point of the difficulty which he feels. The experience in which thought plays a part still appears always as the experience of a single person, beyond whom there are other persons having their experience at the same time. To show how in the experience

of any one of us there arises the recognition of ourselves and of other persons is a legitimate inquiry; but it fails to touch what is the important point. Common sense still believes that persons are real, not as aspects of experience (unless the word 'experience' loses its significance by being made to stand simply for 'reality'), but as the relatively independent centers of experience; and it sees no obvious way of getting them together in an experience at large. Until the difficulty is met, and met in a way which does not reduce itself to what can be interpreted as merely the psychology of an individual life experience—no less mine because I do not happen to be thinking of it as mine at the time—those who feel the difficulty must believe that the relation of thought to reality is a real problem, and that the attempt to solve it by denying its meaning is premature.

Of course the difficulties in the way of understanding the relation still remain. But I believe that the difficulties which the present volume canvasses are largely due to the fact that the writers whom it criticizes are only half-hearted in their recognition of the externality of reality to the judging thought. To be sure, the correspondence of our thought with reality always thus remains a postulate, an act of faith. In concrete terms, there is always the possibility, *e. g.*, that I may misconstrue another person's feelings; and even the continual working success of my interpretation does not do away with a final abstract possibility of scepticism. But we have to take things as we find them. If reality actually were what it seems to be, if, that is, it were made up at least in part of personal experiences which, as facts of immediate experiencing, are mutually exclusive, then there is no conceivable way in which a given conscious unity, if it knew what lay beyond itself at all, could avoid having to take things ultimately on trust. Of course this involves something like a preexisting—not necessarily a preestablished—harmony. But we surely should not be any better off if we were to suppose that there was *not* any harmony existing between the parts of the world; and why not the harmony of knowledge as well as of anything else? The mystery is no more than the mystery involved in anything being what it is; it certainly is no more mysterious than the conception of an experience such as we are acquainted with, giving rise from within itself to all those casual variations which we call external happenings.

A. K. ROGERS.

BUTLER COLLEGE.

REVIEWS AND ABSTRACTS OF LITERATURE

The Educational Theory of Immanuel Kant. Translated and edited with Introduction and Notes by EDWARD FRANKLIN BUCHNER. Philadelphia and London, J. B. Lippincott Co., 1904. Pp. 309.

It is remarkable that the English educational world, while exploiting so exhaustively the work of Rousseau on the one hand, and that of the German educators, beginning with Herbart, on the other, should have remained comparatively unacquainted with the educational theories of Kant. His influence as a philosopher has been so far-reaching that this phase of his work has been lost sight of. The translator says pertinently that—"the increasing study of educational theory by direct appeal to the views of those who have moulded that history, offers ample justification for the appearance of the present translation. And, finally, the contributions which philosophy and philosophers have made to the systematic developments of pedagogy should be given a larger exploitation than has been done hitherto by the students of educational foundations."

Kant's educational theory is derived chiefly from lecture notes used by him 'during four semesters between the winters of 1776-7 and 1786-7.' Coming to us merely as lecture notes, they are necessarily fragmentary and contain many logical imperfections; in the context of his philosophical work they are, nevertheless, extremely interesting, practically as well as historically. The extent to which he connected his educational theory directly with his philosophical presuppositions is uncertain. There are some indications that the notes were not revised in the light of his critical philosophy, and yet 'the towering conception of morality on which he makes education rest, both theoretically and practically, is the morality that he expounded late rather than early in the critical stage of his own development' (p. 18). We are sure, however, that he did not elaborate a system of education from his philosophy, nor did he completely rework it into adaptation to the conclusions of his speculative and practical philosophy (p. 34). The general scope of the notes is as follows: The treatise proper is preceded by an introduction in which presuppositions of an educational theory are outlined. The possibility of human education rests on the fact of infancy. In this period of plasticity the human being should very early be molded in accord with reason. Lack of discipline leaves the human being with 'a certain rawness,' the humanity within being undeveloped (p. 105). It is by education that man is given a character, that he is made a man (p. 107). 'There are germs in human nature, and it becomes our concern to develop the natural capacities proportionately, to unfold humanity from its seeds, and to see to it that man attains his destiny' (p. 110). Since we do not yet fully realize what this destiny is, it is a goal for the race and not for the individual. Education is an art, which in origin and development 'is either *mechanical*, without plan, being arranged according to given circumstances, or *rational*.' In other words, education is either conscious or unconscious. If unconscious, it is necessarily de-

fective from lack of system. Education should be planned with reference to humanity as a whole, for future as well as for present time. The relation of this thought to the ethical maxim that good conduct should always be capable of being universalized is apparent. There are, however, two hindrances to the adjusting of educational practice to this ideal. 'Parents are usually anxious only that their children should prosper in the world, and princes regard their subjects as mere instruments for the accomplishment of their own purposes' (p. 117). (Cf. with the teaching of the ethical philosophy that man is to be treated as an end and not as a means.) Through education a child should be disciplined, cultured, civilized and moralized. The great problem of education is to accomplish in the child the greatest possible degree of controlled freedom.

In the treatise proper education is divided into physical and practical. In the discussion of the former he starts with the child at birth, giving practical suggestions as to care of body, proper clothing, sleep, etc., the formation of habits, early disciplining, evils of pampering and caressing. Everywhere the point is insisted upon that proper growth is insured only by wise inhibitions, and hence direction of natural impulses. The physical and moral value of play is pointed out at some length. Under physical education he discusses all that depends upon practice and discipline, with reference to the body as well as the mind. Moral education, on the other hand, does not depend on discipline, but on maxims. Everything is lost if one attempts to base it upon examples, threats, punishments, etc. (p. 179). The subject of intellectual culture is dealt with very briefly. Memory, attention, judgment and reason are referred to, but chiefly with reference to their function in experience rather than their culture. 'The best method of cultivating the faculties of the mind is that each one himself do all that which he wishes to accomplish' (p. 183).

Under the topic of moral education he approaches most closely to the thought of the critical philosophy. "Obedience is above all things an essential trait in the character of the child. It is twofold; first it is an obedience to the absolute will of him who directs; but it is, secondly, an obedience to a *will regarded as rational and good*. Obedience can be derived from constraint, and then it is *absolute*, or from confidence, and then it is of the other kind. This *voluntary* obedience is very important, but the former is also externally necessary. . . . Children must, therefore, be under a certain law of necessity. But this law must be a universal one which is to be especially observed in schools. The teacher must show no predilection, no preference for one child; for otherwise the law ceases to be universal" (pp. 188, 189).

The following sentences are characteristic: 'Children should always be corrected cautiously, that they may see that the only aim in view is their improvement' (p. 192). The conduct of the adolescent should be governed by duty, which is reason, a thing impossible with the child. Veracity is the principal feature and essence of character. "A third feature in the character of the child must be sociability. He must have friendships with others . . ." (p. 195). 'Children should also

be candid and their faces should be as serene as the sun' (p. 196). 'Children must be kept from a yearning, languishing sympathy' (p. 200). Character 'consists in the firm resolution of the will to do something, and then in the actual execution of it' (p. 201). 'One should be very temperate and abstemious, and maintain a certain dignity within himself which ennobles him above all creatures, and it is his duty not to deny in his own person this dignity of humanity' (p. 204). Benevolence is only an imperfect obligation. 'Children should be filled, not with sentiment, but with the idea of duty' (p. 207). Man is by nature neither moral nor immoral. He becomes a moral being only when his reason raises itself to the concepts of duty and law.

The treatise closes with a section on religious education and a number of practical suggestions on the pedagogy of adolescence. The value of the treatise is greatly enhanced by over sixty pages of carefully selected passages on education from Kant's other writings. We would make special mention also of the valuable introduction and copious explanatory notes. These, on the whole, are extremely valuable. There are, however, some notes that seem somewhat superfluous, considering those who will be most likely to use the book. Instances of this kind are those referring to Franklin, Socrates and Plato. But these are very minor matters compared with the wealth of otherwise inaccessible information that the notes give so lucidly.

To mention only a few points from the introduction: The relation of Kant to Rousseau is clearly discussed; Kant's essentially pedagogical interests are pointed out; the relation of his pedagogy to his psychology is discussed and should furnish an interesting chapter in the history of the evolution of the psychology of education. Kant's educational theory is shown to be 'preeminently a pedagogy of the will' (p. 54). 'No writer has more clearly set forth a *pedagogy of effort*.' The following is Professor Buchner's summary of Kant's principles: "Besides this demand for a science of pedagogy, determined on a basis of facts and reason, Kant offers a number of positive principles borrowed more or less from physiology, psychology, anthropology and ethics, as we of to-day would say. The child must be educated according to 'nature' (here following Rousseau). Civilization must underlie educational principles. The child must be educated under the dominance of the idea of humanity. The bodily powers must be cultivated to orderly independence. The mental powers must not be cultivated separately or formally, but in true mutual interdependence. Self-doing is the secret of true education, and self-education is its goal. Rules and maxims, not impulses and whims, must be the inspiration and guidance of every educational move. . . . Kant was cautious and shrewd enough to distinguish between principle and practice, between a pedagogical generalization and a pedagogical performance" (pp. 71-72).

The last section of the introduction discusses clearly and concisely the limitations of Kant's educational theory.

IRVING KING.

Philosophy in Poetry: A Study of Sir John Davies's Poem 'Nosce Teipsum.' E. HERSHEY SNEATH, PH.D., Professor of Philosophy in Yale University. New York, Charles Scribner's Sons, 1903. Pp. x + 319.

The Mind of Tennyson: His Thoughts of God, Freedom and Immortality. E. HERSHEY SNEATH, PH.D., Professor of Philosophy in Yale University. New York, Charles Scribner's Sons. Second edition, 1903. Pp. xii + 193.

The public has to thank Professor Sneath for his reprint of Davies's 'Nosce Teipsum,' which will undoubtedly reach many a reader for the first time in this form. The poem deserves to be familiar. Its language has all the Elizabethan vigor and charm, with more than the usual lucidity; and there are passages—like the long comparison of the soul to a river—which have a sustained beauty, unaffected eloquence being united with perfect versification. The poem also deserves to be remembered for another reason. It is an excellent example (feeble enough to be typical, but short enough to be tolerable) of scholastic psychology. There is no thought in it which is not a scholastic commonplace, so that the caliber and method of that philosophy can be fairly gauged from it when the reader has abstracted from it the poetic ornament that here serves to sugar the pill. Any one who has never had occasion to study other scholastic treatises may, accordingly, turn to 'Nosce Teipsum' for orthodoxy tempered by literary grace.

Professor Sneath has supplied a faithful analysis of the work, section by section, and appended to each division some observations on the sources and philosophic affinities of the text. He finds evidence that the poet was influenced by Aristotle, Cicero, Nemesius, and Calvin. What is adduced, however, hardly proves that Davies had himself read any of those worthies. People were not then isolated mystics, lighting by chance upon this or that author and adopting his notions. They had learned the catechism and passed the schools, and Davies in particular is absolutely conventional in his ideas. We know that scholastic tradition had thoroughly assimilated Aristotle's vocabulary, however remote it might be from his larger vision and intent. Cicero, too, was in everybody's mouth, and no disputation could have gone on, nor could any treatise on immortality have been written, without one or two quotations from him, conscious or unconscious. As to Nemesius, the parallel passages show no greater similarity than that between any church writers on the subject; Davies might as well be collated with any schoolman or with any divine of his own day. In regard to Calvin some verbal parallelism seems actually to exist; but there is nothing Calvinistic about the poem in general, and we need hardly suppose that a theologian owes to Calvin his elementary knowledge of Christian dogma, when he does not adopt Calvin's peculiar tenets. The whole question, however, is of little moment; for we are not interested in the sources of a thinker himself without originality; it is only novelty that tempts us to trace its genesis. Indeed, we may regret that Professor Sneath did not turn rather to a literary study of this poem,—to a comparison of it, for instance, with Dante's scholastic passages; for in both poets we find the same willingness

to use verse in order to enforce dry doctrine, and in both a certain simplicity and earnest candor beautifies the argument and makes it, in its archaic fashion, touching and poetical.

Far different is the fusion of speculation with verse which Professor Sneath has analyzed, with great clearness and sympathy, in his earlier work, 'The Mind of Tennyson.' Here there is no distinctness of doctrine, but a hazy sentimentality using old symbols and hesitating wistfully between anxiety to believe and wonder what to believe in. Professor Sneath lays before us, without the least intention to be cruel, the thought behind that lyrical mist; but the conclusion is inevitable that the 'Mind' of Tennyson was not his strong point.

G. SANTAYANA.

HARVARD UNIVERSITY.

Relativity and Finality in Ethics. THOMAS C. HALL. *International Journal of Ethics*, January, 1904, Vol. XIV., No. 2, pp. 150-161.

The writer claims that there is a general desire for some final and absolute authority in the field of conduct. An abstract infallibility is demanded, even by those who have accepted the doctrine of relativity in all other spheres of knowledge, including that of religious knowledge. Yet nowhere is the relative character of our knowledge more pronounced than just in the sphere of conduct. Whether it will or no, each generation must reenact its own ten commandments. Kant broke with dogmatism, except in the field of ethics, and it is this hunger for a really abandoned absolute in the sphere of conduct that makes Kant's ethics the most unsatisfactory part of his great work.

In the case of the individual child's morality and likewise in the case of the development of morality in the group there is a leaning upon an ultimate and final authority. There is generally a distinct and dangerous shock where the boy or girl awakes to the fact that father and mother are not infallible, yet long after the intellectual limitations may have been more or less consciously realized, the ethical absoluteness of the parental guidance may remain unshaken. Linked with the moral life there remain for long after the memories of and longings for an authority practically final and infallible. In the morality of the group the strongest expression of this is in the phrase 'the king can do no wrong'; and the most recent expression is the proclamation of the infallibility of the Pope in the sphere of morals and religion when speaking in an official capacity. The question is raised whether any such abstract infallibility is really necessary to enforce our moral obligations. The unreality of all pretending infallibility is dawning on a slowly maturing race, and the effect of this causes anxiety on the part of the responsible leaders in church and state.

The author argues for the sense of duty or 'oughtness' as the great present need. That a sense of 'oughtness,' an immediate and impelling sense of duty, must ever exercise its wholesome influence over the race seems implied in the very fact that the interests of the group and those of the individual never do and never can absolutely coincide. Hitherto

symbols of an abstract authority, infallible and final, have been socially useful, and now as these symbols fade there becomes more and more necessary the insistence on a sense of duty apart from all prudential personal considerations. In answer to the inevitable question, what takes the place of the infallible authority, there can be but one reply. We are here, as everywhere else, entirely dependent upon our experience. The sense of 'oughtness' gives us no light upon *what is our duty*, but only tells us that our duty *must be done*.

Often we must depend on unreasoned but deep-seated impulses for our guidance; but the race coming slowly to intellectual maturity is bound, as far as is possible, to rationalize its empiric morality. Impulsive morality must become the morality of intelligent conviction, often passing out of the field of moral contest as it is thus rationalized. Thus—and herein lies the hope of the race—the ethical triumphs of one generation or of individuals in the past become the undisputed possession of succeeding generations.

Historically no force has been more efficient in impressing men with the tremendous value of this obedience to duty than that of religion. For this reason it is all the more unfortunate when dogmatic forms of religion insist on alleged infallible authorities. Such forms of religion act as ethical soporifics, and check the very moral enthusiasm and inquiry which it is their chief business to enkindle.

The only hope for the ethical future of the race is the careful insistence, on the one hand, on the finality of our moral obligation, and, on the other hand, on the relativity of our ethical knowledge. Our moral advancement, both personal and social, depends upon our honest struggle to solve the problems about us. It means more for the race that the moral agent should form his own imperfect ideals with the help of the past, than that he should accept ready-made an ethical system, no matter how exalted, and obey it slavishly and mechanically.

The main positions of the writer are unassailable. They report much of the truth involved in nativism in ethics, on the one hand, and empiricism on the other.

WM. MILTON HESS.

YALE UNIVERSITY.

The Relation of Ethics to Metaphysics. W. H. FAIRBROTHER. *Mind*, January, 1904, pp. 38-53.

Is it possible to have an ethics devoid of metaphysics? The writer of the paper finds the ethical writers divided on this question. On the one hand, Plato, Graham, Watson and T. H. Green have answered it in the negative, while, on the other, such writers as Leslie Stephen and Professor Sidgwick have asserted that the two spheres are not related.

The question involved in this difference of opinion is answered by the writer by tracing the connection between the ethical and metaphysical views of such writers as Kant, Spencer, Mill and the English moralists of the eighteenth century.

It is to be noted, however, that, considering the question in the ab-

stract, he has already prejudged the case. 'Some working assumptions as to the ultimate truth of things,' he remarks, 'we can as little do without as we can jump off our own shadows,' a remark which seems so evident that it is remarkable that it should be necessary to appeal to historical facts for its proof.

Following Professor Adamson, the writer regards the ethical teaching of Kant as 'an integral portion of a philosophical whole.' The pure practical reason and the pure speculative reason are essentially the same faculty, 'which as self-determining supplies us with notions of freedom, as determined with notions of nature—the categories of the understanding.' This view of the Kantian doctrine is, of course, open to question. That it presents the doctrine in its more convincing form seems clear, but that Kant intended it to be so interpreted seems equally doubtful.

Herbert Spencer is not an agnostic except with respect to the ultimate first cause. According to him, a scientific comprehension of the universe is possible, including a science of ethics, which has for its object to determine 'how' and 'why' certain lines of conduct are detrimental or bad, while others are beneficial or good. Moral evolution and physical evolution advance together according to the same underlying principle.

J. S. Mill's proof of his doctrine of utilitarianism is based on his general philosophical position of empiricism. The rules and principles of morality are discovered by means of an empirical investigation of what man actually prefers, man being regarded not as a social unit, nor as influenced by race experience, but rather as the average of men in the aggregate.

From his examination of the writings of the English moralists of the eighteenth century, who professed to have no views as to the ultimate nature of things, the writer of the article concludes that an ethics divorced from metaphysics is practically valueless. There is some truth, however, in the position taken by Sidgwick and Stephen, though it has been badly expressed. What they really mean to say is that our 'knowledge of reality is not complete enough to enable us to deductively demonstrate the multifarious details to which answers must be given and practically acted upon in daily life.' That is to say, these writers lay emphasis on what *is*, rather than what *ought to be*. It would have been an interesting confirmation of the writer's contention, had he included in his article an examination of the metaphysical implications of such writers as Sidgwick and Stephen.

E. H. CAMERON.

YALE UNIVERSITY.

JOURNALS AND NEW BOOKS

REVUE PHILOSOPHIQUE. January, 1904. XXIX., 1. *Le Cynisme, étude psychologique* (pp. 1-28): E. TARDIEU.—Cynicism defined as unrestrained, calculating, self-confessed, self-applauding egotism is described in some of its impersonations, and theorists, among whom Schopenhauer, Renan and Nietzsche. Its metaphysics are based on the

immorality of nature and of life, that makes egotism an inexorable necessity. It is often the sign of the strong (Napoleon), but also the revenge of the vanquished, the characteristic of the wicked. It is an accompaniment of sensuality—of passion—and is besides the tendency of base natures. Cynicism may be collective; it may be found with the masters, with the superior thinkers, the rich, the bodily sound and the well-doing. It may be found, on the other hand, with the weak (slaves, servants, workingmen, sick); in married life, between husband and wife, parents and children; even in the practice of religion toward God, during lifetime and even at the point of death, as in the case of feigned and insincere repentance. *Caractère de l'Histoire* (pp. 29-45): XENOPOL. — History concerns itself principally with the *individual* features of the facts, those that take place 'once only in the course of time' although those facts may be *collective* in their bearing on human society. The 'universal' element is the object, not of the historical narrative, but of special sciences. Sociologists have tried to make out laws that would preside over historical evolution, but M. Xenopol trusts he has precedently shown (in his 'principes fondamentaux') that none of those so-called laws is verified by facts. Although history may discover laws, its object is still the individual fact in its individual features; abstract laws will give the mode of manifestation of historical forces, not the concrete development. *La Logique et l'Expérience* (pp. 46-69): F. LE DANTEC. — As it is a natural tendency of the human mind to use reasoning to resolve problems, we may inquire what may be the value of Logic. For M. le Dantec, logic is but the 'résumé of ancestral experiences.' Through it, therefore, we can know the facts only 'on the human scale' and our logic could not apply to facts of another nature than those that gave rise to it; it has limitations, beyond which it would lead our mind to contradictory assertions. (This on the occasion of some recent mathematical theories.) *Notes et Discussions* (pp. 70-71): DR. J. H. LEUBA, of Bryn Mawr, complains that Vte. de Montmorand in a preceding article, analyzing his study on the *Christian Mystics*, passed by three orders of features which Dr. Leuba considered characteristic of the same, and develops only a fourth, the one which Dr. Leuba called 'erotomania,' thereby misrepresenting somewhat, perhaps unconsciously, his true opinion, while giving an inadequate idea of the Mystics themselves. *Revue Critique* (pp. 72-87): LÉVY BRÜHL, *La Morale et la Science des Mœurs*, P. FAUCONNET. — The scientific basis of the moral prescriptions is to be found in sociology, which will be able, when fully completed, to give us an 'Art of Moral Conduct.' *Analyses et Comptes Rendus* (pp. 88-106): FRIED. SELLE, *Die Philosophie der Weltmacht*; J. SEGOND. E. TARDIEU, *L'Ennui, étude psychologique*; H. DAUDIN. E. GLEY, *Études de Psychologie physiologique et pathologique*: ALFRED BINET. H. B. THOMPSON, *The Mental Traits of Sex*: B. BOURDON. L. W. STERN, *Beiträge zur Psychologie der Aussage*; B. B. *Annales de Sociologie*: GASTON RICHARD. FRIED. HEBBEL, *Der Pantragismus als System der Weltanschauung und Aesthetik*, CHARLES LALO. *Revue des périodiques étrangers*: — *Mind* (Jan.-Oct., 1903). Notice Necrologique: H. SPENCER.

REVUE PHILOSOPHIQUE. February, 1904. Pp. 113-224. *L'Evolution comme Principe Philosophique du Devenir* (pp. 113-135): W. M. KOYLOWSKI. - Besides the conservation of energy there is a second great law, that of transformation; changes are in one direction, toward a definite end. The universe as a whole undergoes an irreversible process. The end is mechanically not teleologically determined. *Saint-Simon, Père de Positivisme* (pp. 136-157, à suivre): - G. DUMAS. Saint-Simon first outlined the positivistic system, and Comte, notwithstanding his frequent denials, owed that system to Saint-Simon. *L'Hypothèse du Retour Éternel devant la Science Moderne* (pp. 158-167): G. BATAULT. - Blanquès, LeBon, Nietzsche believed that the universe will return to its original state. This is consistent with modern science. Since there are a finite number of atoms, in an infinite time the same permutations and combinations are bound to be repeated. *Expériences sur l'Activité Intellectuelle* (pp. 168-192): P. LAPIE. - The author, by reading aloud sentences to his pupils and ascertaining their first subsequent reflections, is enabled to conclude that thought is most active normally in the direction of the least knowledge. This activity is not governed by association or emotional interest, but by purely intellectual motives. *Analyses et Comptes Rendus. Psychologie*: L. DUGAS, *L'Imagination*. F. PAULHAM. F. W. H. MYERS, *Human Personality and its Survival after Bodily Death*, S. JANKELEVITSCH. *Moral*: F. RACCH, *L'Expérience Morale*, F. PAULHAM. P. SCHWARTZKOPF, *Das Leben als Einzelleben und Gesamtleben*, J. SEGOND. *Histoire de la Philosophie*: L. CONTURAT, *Opuscules et Fragments inédits de Leibniz*, A. PENJON. *Kant's Gesammelte Schriften*, J. SEGOND. *Revue des Periodiques Etrangers*.

REVUE DE PHILOSOPHIE. February, 1904. Pp. 137-260. *Le Problème Morale* (pp. 137-151): G. FONSEGRIVÈ. - The source of moral obligation must be concrete and yet universally binding: the concept of God alone satisfies these requirements. Though in the order of knowing God is second to morality, yet in the order of being He is first. *De la Nature de l'Emotion* (pp. 152-167): P. HERMANT. - An emotion is a system of images, most of which are in the 'fringe of consciousness.' Emotions differ according as these images differ. Accordingly, every mental state has an emotion of some sort. Description follows of attention, admiration, ecstasy, surprise, anger, etc. *Les Signes Physiques de l'Intelligence* (second et dernier article, pp. 168-195): N. VASCHIDE and M. PELLETIER. - In general measurements show that intelligence varies directly with volume of brain. This is, however, too liable to exception to be of practical use. It can be made more exact if we allow for the other correlative of brain-volume, i. e., its ratio to bodily development. Making this allowance, we find the above law holding with considerable exactness. *Pensée et Cerveau* (pp. 196-200): DR. SURBLED. - Dr. Surbled objects to the position of Dr. J. Grasset which would seem to make the mind wholly localized in the space of our brain. *Réponse* (pp. 201-206): J. GRASSET. - The functions of the mind may be so localized, while the mind itself may be independent of spatial position or material conditions,

even immortal. *Analyses at Comptes Rendus*: A. Dufourcq, *L'Avenir du Christianisme*, P. DUHEM. L'Abbé Guibert, *Le Mouvement Chrétienne*, C. BESSE. P. QUPUY, *Méthodes et Concepts*, M. CANCE. H. SPENCER, *Taits et Commentaires*, traduit par A. Dietrich, V. BIÉTRIX. J. GRASSET, *Le Spiritisme devant la Science*, E. BARON. C. ALIBERT, *La Psychologie Thomiste et les Théories Modernes*, E. A. G. FRAINNET, *Essai sur la Philosophie de Pierre-Simon Ballanche*, V. BIÉTRIX. Ch. HUIT, *La Vie et les Peuvres de Ballanche*, V. BIÉTRIX. Ch. WADDINGTON, *La Philosophie Ancienne et la Britique Historique*, V. BIÉTRIX. G. FRAINNET, *Vade-Mecum de l'Élève de Philosophie*, V. BIÉTRIX. R. WORMS, *Précis de Philosophie*, G. S. T. LE ROUX, *Eléments de Philosophie*, G. S. PÉRIODIQUES ANGLAIS. Bulletin de l'Enseignement Philosophique. L'Enseignement de la Philosophie.

PFLUGER'S ARCHIV FÜR DIE GESAMMTE PHYSIOLOGIE, Jan.-Feb., 1904, Bd. CL. *Beiträge zur Physiologie des Nervensystems der Schlangen* (pp. 23-51): A. J. CARLSON.—Good-sized snakes are admirably adapted for studies on the spinal cord. The rate of transmission of a nervous impulse down the cord was variable, averaging 16 meters per sec.; while the rate in a peripheral nerve (hypoglossal) of the same animals was 10.5 m. per sec. The direct motor pathway lay in the dorsal portion of the lateral column of the side innervated. The brain severed from the cord sometimes retained apparently conscious functions (vision) for 2½ hours. *Zur Frage der Unterscheidbarkeit rechts- und linkszügiger Gesichtseindrücke* (pp. 67-70): HEINE.—Discussion of the fact previously announced by the author that if one eye is kept from stimulation while the other is stimulated by a point of light, the subject can tell which is the stimulated eye. *Zur Erinnerung an Alexander Rollett* (pp. 103-153): O. ZOTH.—Outline of Rollett's life and of his contributions to histology, to muscular contraction, fatigue and recovery, to binocular vision and color contrast, and to the study of other sensations. List of Rollett's works. *Ueber die Localisation der Tonempfindungen* (pp. 156-182): V. URBANTSCHITSCH.—When the sound of a tuning fork is conducted by a rubber tube to one ear, it is subjectively localized in some part of the ear or head. The localization is rather variable; it differs with pitch, loudness and duration; high tones are more often localized in the interior of the ear or head, and low tones toward the surface. When the tone is conducted simultaneously to both ears, it may be localized in both or in the center of the head; if one ear hears better than the other, the tone is localized in it or near it. When a tone is conducted first to a single ear and then to both, the localization shifts to the second ear before settling in the center of the head. By voluntary attention and practice, these localizations can be changed from the center of the head to either ear, from a small area to a larger one. A vibration that at first produces no sensation may on repetition cause first an unpleasant non-auditory sensation, and later still a consciousness of sound. The non-auditory sensations are localized in the same way as the sounds. *Untersuchungen über den Erregungsvorgang im Sehorgan bei kurz- und bei längerdauernder Reizung* (pp. 226-262): C. HESS.—

The view often held that the secondary bright sensation seen after momentary stimulation of the eye represents a secondary response of the rods only is disproved by experiments showing (1) that this response is given by the rod-free fovea; (2) that it appears both at the beginning and at the end of a stimulation lasting several seconds; (3) that it appears with strong as well as weak lights, and with eyes adapted to light as well as to dark. A variety of forms of the secondary response with colored lights are described and pictured. *Die Scheinbare Vergrößerung von Sonne, Mond und Sternbildern am Horizont* (pp. 349-422): R. MAYR. — Classification and criticism of all previous explanations of the apparently greater size of the sun and moon when near the horizon. The author's theory is that, without necessarily comparing the sun with distant earthly objects, we do see it, when low in the heavens, in the relations in which we see such objects, and are subject to the same illusion, viz., over-estimation of the size of its visual image. Actual comparison, thickness of atmosphere, etc., are contributory factors.

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Wartenberg, M. *Das idealistische Argument in der Kritik der Materialismus*. Leipzig: Barth. 1904. 8vo. 70 pp. 1.60 m.

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NOTES AND NEWS

THE *Revue de Métaphysique et de Morale* has undertaken a public subscription for the erection of a monument to the memory of Charles Renouvier. A circular has been issued in connection with the March number of the review setting forth the plan as follows: "Charles Renouvier a laissé une œuvre qui honore la pensée humaine. Sa vie a été un modèle de désintéressement et de dévouement aux plus nobles causes. Le philosophe, le citoyen, l'homme méritent une égale admiration. Il a semblé à quelques-uns de ses disciples auxquels se joignent des amis et des confrères qu'un monument très simple devrait consacrer cette grande mémoire. Ce monument serait élevé dans la ville natale de Renouvier, à Montpellier, et dans les bâtiments de l'Université qui sera

certainement fière d'en recevoir la garde. En vue de réaliser ce projet et de permettre aux disciples de Renouvier d'édifier ce monument, la *Revue de Métaphysique et de Morale* ouvre aujourd'hui une souscription publique; elle fait un pressant appel à tous les amis de la philosophie, à tous ceux aussi de la démocratie française; ils y répondront." Subscriptions should be addressed to Libraire Armand Colin, 5, rue de Mézières, Paris.

THE Section of Anthropology and Psychology of the New York Academy of Sciences met in conjunction with the New York Branch of the American Psychological Association on Monday, March 28. There was an afternoon session at the Psychological Laboratory, Columbia University, when the following papers were read: 'Mental Resemblances of Twins,' by Professor E. L. Thorndike; 'Measurements of the Mentally Deficient,' by Miss Naomi Norsworthy; 'Color Contrasts,' by Dr. R. S. Woodworth; 'New Apparatus and Methods,' by Professor J. McK. Cattell; 'The Time of Perception as a Measure of Differences in Sensations,' by Mr. V. A. C. Henmon; 'The Daily Curve for Efficiency,' by Mr. H. D. Marsh; Lecture by Professor John Dewey on 'The Psychologists's Account of Knowledge.' In the evening there was a session at the American Museum of Natural History, with the following papers: 'Habits Based on Analogy,' by Professor Charles H. Judd; 'The Determination of the Habit Curve for Associations,' by Professor James E. Lough; 'A Neglected Point in Hume's Philosophy' by Dr. William P. Montague; 'Action as the Concept of Historical Synthesis,' by Mr. Percy Hughes. Between sessions the members dined at the Hotel Endicott.

THE Western Philosophical Association held its fourth annual meeting at the University of Missouri on the first and second of April. The programme was as follows: 'The Significance of Attitudes in Psychology,' Professor Thaddeus L. Bolton; 'Memory and the Economy of Learning,' Dr. R. M. Ogden; 'Symposium on Herbert Spencer's Philosophy,' led by Professor E. L. Hinman; 'Ethics and its History,' Professor Alfred H. Lloyd; 'The Need of a Logic of Conduct,' Dr. Henry W. Stuart; 'Kant's Antithesis of Criticism and Dogmatism,' Professor Arthur O. Lovejoy; 'The Platonic Doctrine of Immortality,' Dr. Thomas M. Johnson.

PROFESSOR JOHN DEWEY, of the University of Chicago, completed on March 29 a course of six lectures at Columbia University on the subject 'What do we Mean by Knowledge.' The titles of the several lectures were as follows: 'The Meanings of the Term Knowledge,' 'Familiarity and Assurance,' 'Knowledge and Scientific Method,' 'Knowledge as the Subject-Matter of Science,' 'The Psychologist's Account of Knowledge,' 'Knowledge, Industry and Art.'

PROFESSOR FRANK THILLY, of the University of Missouri, has been called to Princeton University to fill the chair of psychology made vacant by the resignation of Professor J. Mark Baldwin.

PROFESSOR G. M. STRATTON, at present associate professor of psychology in the University of California, has been appointed professor of experimental psychology in Johns Hopkins University.

THE JOURNAL OF PHILOSOPHY

PSYCHOLOGY AND SCIENTIFIC METHODS

A SUGGESTION TOWARD A REINTERPRETATION OF INTROSPECTION

CHANGES in general standpoint must always be followed at a considerable distance by changes in particular applications. This is especially true just at present in psychology. Even within the last decade it seems that the generally accepted standpoint in psychology has been changing from a dualism to a qualified monism. While ten years or so ago the majority of psychologists would have begun their analyses with the assumption that mind and body were two distinct entities which could be immediately known as distinct, it is probable that a statistical count would show that the greater number now accept as their starting point an experience which in itself is neither subjective nor objective. It is no longer generally asserted that there is a great gulf fixed between the mental and physical, subjective and objective, but the distinction is drawn as by Wundt in the difference of attitude that is taken toward the common experience, or the difference is made to lie, as for Külpe, in the way in which the two groups of phenomena are excited, with a slight corresponding difference in the qualities of the two processes.

Among the topics which have been largely unaffected by the changes in the general standpoint is introspection. It is still frequently treated from the older standpoint, and it would seem that its important place among psychological methods would make it worth while to attempt to reinterpret the generally accepted facts from the position of the newer theories. From the newer conception we can no longer dismiss introspection with the statement that it is the peculiar method of psychology, or be satisfied with the statement that it is by introspection alone we can turn our gaze inward upon the mental states with which psychology deals. The philosophers of experience regard both mental fact and physical fact as parts of the single datum, so that whatever observation goes on must be directed toward the same general kind of material in the same place, so far as spatial terms can be applied to the common

experience at all. And we can not regard introspection as the process of watching the mind at work from some standpoint still more removed from the external world than the mind itself. For if from the doctrine of experience the known and the knower coincide, it is still truer that the knower and the knower of the knower must be identical.

A careful observation of the actual processes involved in introspection convinces the writer that what does distinguish it from observation is simply the attitude of mind at the time the two processes run their course. To repeat Wundt's statement, when introspecting we regard the given mental processes subjectively; when observing we regard them as objective. When we regard a given experience objectively, the question in mind, expressed or implied, is as to what the object may be in itself or in relation to other objects. When we introspect, on the contrary, we ask what the experience means to us and what its relations may be to other mental processes. Exactly the same experience may, and usually does, furnish the starting point for both. If, for example, we are attracted by a distant light, we are observing so long as the problem that concerns us is the nature of the light, whether a lighthouse, a moving boat, an anchor light or a lamp in some cottage on an island. In making this determination there must come up certain definite associations that complete the bare sensation and make it take on a definite form. What associations shall come up, what the light shall mean for us, depends upon what the present mood of the observer may be, upon his knowledge of his surroundings and of his earlier experiences in general. With changing mood and growing knowledge the interpretation will change, but observation under the same condition, external and mental, always results in the same perception. To regard this same experience subjectively means to observe the first completed perception in very much the same way that the sensation was observed, and with almost identical results. As you introspect you have in mind a query as to how the perception was constituted, as to why that particular mood was present and why you saw the light as on shore rather than on sea, or why you were attracted by this particular light rather than another—in short, to work out concretely and in detail the factors that we have hinted at in the preceding sentences. With this problem in mind there must group about the perception new associations, other comparisons must be made, and the nature of this completion again will depend largely upon the problem the introspector has in mind and upon his general knowledge. In both processes the general laws are identical, and the elements involved may be very much the same. The original stimulus that occasioned the perception may still be acting, and

the associates that were called up during observation persist for the most part during the introspection. So far as the structural elements are concerned, the only difference lies in the presence of a few new associates. Functionally the difference lies merely in the mental dispositions, in the difference in the problems which are pressing forward for an answer.

The difference between the psychical dispositions of introspection and observation may be no greater than in the observation of facts from the standpoints of two objective sciences, or between the mental attitudes that are dominant in the consideration of different psychological problems. When, for instance, the biologist and the chemist regard the vital phenomena manifested by the lower animal forms, the one sees in them nothing but attraction and repulsion of ions, the other only tropisms, taxes and instincts. Both the mental attitude and the resulting interpretation are as different as in our illustration was the light as physical emanation and the perception as mass of associations. On the psychological side Professor Külpe has well illustrated the difference in his experiment on attending with two questions in mind. When, it will be remembered, the subject was asked to look at a mass of letters exposed for a brief instant and say how many letters there were, he could answer with fair accuracy, but could say very little as to what letters were exposed; but when he had been asked to say what letters there were he could answer that question, but could only say how many there were after counting in memory. It is this same difference in mental attitude, of the problem in mind, that distinguishes observation and introspection.

A solution of the question as to whether introspection may go on side by side with observation and of the validity of introspection follows from an acceptance of the interpretation of the nature of introspection. The first problem must be decided against Spiller and in harmony with the traditional belief. You can no more introspect at the same time you observe than you can look at an animal at one and the same instant as a chemist and a biologist, or at a man as friend and as physician. One point of view necessarily excludes the other if the two involve the answer to two different questions. To go back to our illustration, you can not ask what the light is and why you are interested at the same time. If you could ask why you are interested or how you know what light it is, you could learn nothing of the light itself. This again is not without its analogue in physical observation. An astronomer can not be busy wondering what correction in longitude his observation is likely to bring about as he takes his transit. If he falls into this attitude his observation is very likely to be at fault. In all scientific work the same law holds. You must first be completely attentive to the observation, to

the acquirement of data, and only concern yourself with its meaning or interpretation after the first observation is complete. The same material is involved in the observation as in its interpretation, but the attitude of mind is different in each case. This, then, it seems to the writer, is all that can be meant when we say that it is impossible to introspect a process during its course. You can not have two attitudes toward the same fact at once. In so far the traditional statement is true, and when Spiller and others assert the contrary they are both at fault in their observation, and forget the facts concerning the distribution of the attention.

That the identification of introspection and retrospection necessarily invalidates introspection, as Spiller argues, does not in the least follow. The interval that must elapse between observation and introspection is not sufficiently great to permit the process to undergo any change; in fact, experiments prove that the lapse of a short interval renders our knowledge more rather than less adequate. Again, if it is argued that the additions which are made to the mental process in introspecting distort it, it is only necessary to answer that the associations which are added in the observation of any physical object would also similarly distort that. If introspection is to be discarded on this ground, so also must observation, and we are left with absolute scepticism. The only way we can know is by an interpretation, and that consists largely in the addition to the mental process or sensation of associations, in comparing it with other processes, in bringing it into connection with knowledge as a whole. All this does not interfere with the fact that you have had the perception or bit of reasoning for itself, nor does it destroy the truth of the mental fact, any more than it prevents the perception itself from being accepted as true because there must always be additions to the immediate sensations. You have your choice of knowing a process psychologically, of knowing it physically and of not knowing it at all, but if you are to know it there must be something added in the process; there is no escape from this but ignorance. It is useless to argue that knowing is a distortion, for the perception does not exist until known, the distortion is a part of the existence of the mental state as known psychologically, just as the physical interpretation is a part of the object as we know it physically.

It would seem, then, that introspection differs from observation only in the attitude of mind as we examine the mental process, that we can not introspect a process during its passage merely because we can not have two different attitudes of mind at once, and that there is no more reason to assume that the results of this post-mortem examination are erroneous than to assume that all observation is misleading.

W. B. PILLSBURY.

RECOGNITION AND RECALL

THE influence of a perceptual stimulus in facilitating the process of imaginative reproduction is matter of common observation. It is often of great practical importance, since an act of recall which completely failed when approached through central association may thus be effectively aroused and carried through. The name which can not, by the greatest racking of memory, be brought back to consciousness is thus uttered spontaneously and without hesitation when the bearer is again met face to face. The same name, when it has thus escaped memory, may be instantly recognized and identified with certainty the moment it is uttered by another. So pronounced is the independence of these two processes that there may be habitual recognition of classes of impressions which are apparently irrecoverable as mental images in the type of mind to which a given individual belongs. One who is incapable of calling up any distinct visual imagery recognizes without hesitation the objects and persons of his surroundings; one who can not carry a single tune in his head need have no difficulty in identifying an air when it is heard again.

The supplemental processes through which any element of a previous content of consciousness is appropriated and identified may be aroused through either central or peripheral connections. Stimulation of the latter type is, of course, much more likely to be effective than that of the former. When one has failed to recall a given fact even after all the remembered associations have been passed in review as possible cues, the desired connections are likely to shoot home if some element of the original situation is actually re-presented instead of merely reviewed in imagination. The sight of the common friend who made the introduction may help one to a name which resisted recall even when the personality of the introducer was invoked in memory to aid the process. The occurrence of an associate of a given conscious context in the form of an original sense presentation so far surpasses the efficiency of voluntary imaginative recall in breaking down the inner resistance which exists in such cases as to place it in a separate class from the latter.

The general nature of the supplemental process may, for our purpose, be regarded as the same in the two cases. In both the sense of familiarity is aroused in connection with the conscious content in question; its appropriation may take place with equal sense of security in the two instances; and its identification consists always in the establishment of certain thought-of connections which give it a definite place in the web of past experience. But the arousal of these processes takes place in very different ways in the two cases, and it

may become a matter of importance to determine quantitatively the efficiency of the two forms of stimulus, central and peripheral, in giving rise to those associated activities upon which these mental functions depend. To this end the writer had made under his direction a series of observations concerning the relations of recall and recognition which were carried on during some four weeks, but the results of which can be regarded merely as a preliminary report having no final value so far as its quantitative features are concerned. The record, nevertheless, seems justified as a suggestion concerning, and contribution towards, any more systematic investigation of the matter which may elsewhere be undertaken.

The experiment consisted in the presentation of a series of ten words, as many as possible of which the observer was afterwards called upon to reproduce through voluntary recall, in the one case; or, in the other, to identify when re-presented as part of a larger group. Two observers took part in the investigation. The materials were presented in two forms, first as a visual and second as an auditory content. In the former case ten monosyllabic words were simultaneously exposed for a period of ten seconds, after which the observer wrote down all he could recall of the series within a minute's time. For the recognition test, after a similar exposure the ten words were mixed with an equal number of other monosyllables and the whole group was then presented to the observer, who indicated all those which he could satisfactorily identify as having formed part of the original series. On account of the time involved in this second arrangement of material twenty seconds were uniformly allowed to elapse between the close of the first presentation and the beginning of the process of recall or identification. In the auditory series ten words were read out at the rate of one a second, and reproduced as before in the case of recall, or identified in a series of twenty which included the original ten and was read aloud slowly by the conductor of the experiment.

An obvious comment upon the conditions of experimentation as thus described concerns the apparent disparity of alternatives in the two cases of recall and recognition respectively, and the influence of this factor upon the results. In the former case the series of possible choices is limited only by the whole number of monosyllabic words which might occur to the mind of the observer within the given time, and is therefore indefinitely great. In the latter case, on the other hand, it is known from the outset that the entire series of ten words is comprised within a total group of twenty; in consequence of which fifty per cent. of correct judgments are in the long run to be expected even when the selections are determined by chance. It might appear, therefore, that in interpreting the latter results the

presence of a large constant error due to this factor must be taken into account. Such would be the case if the observer were required each time to select ten words out of the given twenty; it would, indeed, be necessary to consider it if he were found habitually or frequently completing a series of ten in his identifications. But not only was the subject not required to select ten words under these conditions; he was also cautioned to indicate only those words of which his identification was reasonably certain. He knew, to be sure, that somewhere within the group of twenty words the whole original series was to be found, but as the problem in the case of each word as it came under consideration was the simple one whether or not it could be recognized as part of the original series, this knowledge would affect his judgment at most only as an obscure disposition to cast the benefit of doubt in favor of, rather than against, identification. The observers themselves were unaware of the presence of this prejudicial element in their judgments, and it is safe to say that the percentages here given represent with reasonable accuracy the proportion of actual identifications in recognition as well as in recall.

The results of the tests can be stated in a few words. Those in the visual series are given in the first table below; those in the auditory follow in the second. All the quantities are in terms of percentages of correct judgments, and represent the average of the series of individual tests.

TABLE I.

Observer.	Recall.	Recognition.
A.....	54.3 per cent.	69.7 per cent.
B.....	59.5	84.3
Average	56.9	77.0

TABLE II.

Observe	Recall.	Recognition.
A	50.0 per cent.	74.0 per cent.
B	57.0	74.3
Average	53.5	74.15

The individual observers present different levels of accomplishment, *B* making the higher, *A* the lower, percentage throughout the whole series of variations. The average number of correct judgments is greater in the visual series in both recall and recognition. The difference in the number of correct judgments made in recall and recognition respectively, all cases included, is 20.37 per cent., an average which is composed of two practically identical constituents, namely, 20.1 per cent. in the visual, and 20.65 per cent. in the auditory series. Roughly, then, where a little over one half the orig-

inal matter was reproduced through voluntary recall, three quarters were recognized when represented as part of a larger context. This difference is probably decidedly less than would have been predicted by most persons, and there is, of course, reason in ordinary cases to believe that out of the whole series of instances in which one's memory is at fault concerning a name, date or the like, recognition would unhesitatingly take place in a much larger majority of cases than this were the number or term actually furnished to its seeker. But these are cases in which the whole system of connections which the name has had in our experience is well defined and persistent, only for the time being it is dormant. Like a trigger which hangs fire, the associate linking the present thought with the desired context fails to complete the connection. But this inward resistance once broken down, we *know* that the mind would be flooded with a wave of instant recognition and appropriation.

Under the conditions here in question, on the contrary, the terms to be recalled or recognized have no such mooring in the mind. They are presented under conditions of time and association which, except in accidental cases, allow no fixed connections to be formed. The general character of the processes involved, as well as the quantitative value of the difference presented by recall and recognition under the conditions obtaining during the present experiment, indicates a dependence upon other determinants than those which differentiate these functions in their relation to well-known terms which have been forgotten. Instead of persistent connections which have for the present been blocked, it is probable that here the quantitative difference between recognition and recall is related to phases of waning in a system of after-effects of the original impression which has had a continuous existence during the intervening period, but is on the way to an early extinction from which subsequent revival will be impossible. A certain violence or duration in an impression appears necessary in order that any permanent record of it shall be made in memory. Of the multitude of faint and evanescent stimuli which do not leave any such persistent trace it is to be observed, as various writers have pointed out, that if attention be not turned to their character until after the stimulus has been removed, it is still possible during a subsequent period, which is, indeed, commonly very short, to catch their echo, as it were, still reverberating in consciousness; but that if a greater delay occur before the attempt is made the form of the impression will be found to have been lost beyond recall.

The indications are that in the investigation here reported the results are dependent upon the stages of fading presented by an elementary memory of this sort. In its relation to the content repro-

duced in the process of recall the original material comprises three classes of data—first, words correctly reported; second, those not recalled at all; and third, words not correctly reproduced but represented by substitutes resembling those originally given, as ‘sot’ for ‘sit,’ ‘fad’ for ‘pad,’ ‘hug’ for ‘mug,’ and the like. The proportion of such errors nearly equals the difference between the percentages of words correctly reproduced through voluntary recall and words recognized upon re-presentation. The fact that the total number of words set down, including both perfect and approximate reproduction, thus roughly equals the proportion which the observer is able to identify amid a larger group suggests the inference that of the whole series of impressions received under the given conditions—some 25 per cent.—are already ‘dead,’ in the sense that they can neither be voluntarily reproduced, nor even identified upon re-presentation, while of the remainder a certain proportion, though beyond the reach of direct associative recall, are still ‘viable,’ capable of arousing the supplementary processes of recognition on the renewal of the sensory impression. If this be so, the proportion of words correctly and incorrectly recalled and of those recognized would be a function of the temporal phase presented at the moment by these disappearing after-effects, and not a true phenomenon of memory. It would, therefore, be impossible to apply the results, without verification, to subsequent processes of reproduction proper in their relation to recognition. There remains the question of the period during which the excitability due to the original impression persists in such cases. The rapid initial decline in the memory content described in the classic investigations of Ebbinghaus is perhaps a reflection of this process of fading, and in its curve indicates its temporal progress. As the bulk of recorded experiments on memory and association depend upon reports made within the probable limits of this dissolution process, it is to be considered whether the formulæ which they have afforded—the laws of recency and primacy, for example—do not need revision before they can safely be applied to the more permanent content of associative memory.

ROBERT MACDOUGALL.

NEW YORK UNIVERSITY.

DEFINITIONS OF INTENSITY

IN this paper I investigate the meaning of intensity (intensive quantity or magnitude) as a scientific category; that is, intensity as used in psychology and physical sciences. Most of the definitions hitherto given seem obscure, even contradictory. For instance, one authority says intensities are in no sense measurable; another that

they are in principle measurable. When authorities can thus differ in interpreting this term, it must be that we have not yet brought to light its essential nature. I therefore undertake another analysis of the term in the hope of suggesting what this essential nature is.

In some subjects it is enough to build up a definition deductively; thus, we define cardinal numbers by combining the concepts class and one-to-one correspondence. This method seems to hold good in a so-called ideal realm like that of mathematics. But there are regions in which a definition will be of little use unless it be also to some extent obtained by analysis of given facts. The category of intensity, we shall see, belongs to such a region. For example, a conceptual or mathematical definition of intensity like the following,¹ intensity implies greater, less or equal, but without the whole-part relation, must be regarded as insufficient, even though correct; for we can not easily tell what facts are intrinsically incapable of such relation. As to whether sensations are in any sense wholes, the point is in dispute. Velocities and temperatures seem to be *treated* as though they were capable of division, even if we call them intensive. So purely conceptual a definition as the above is, therefore, not easily applied to the facts. Is there not some mark by which we can tell what kind of a fact will have these properties, and what kind will not? Such a mark, if it exists, must be discovered by analysis of the facts in question. In a purely mathematical realm, the definition given above would suffice, but intensity is used in applied science, and unless its characteristics can be detected in facts by a simple inspection, our definition has not told us all that it should. We must then not only state the general characteristics of intensity, but also by analysis of facts ascertain that property which makes them have these characteristics. The task of defining intensity then falls into parts: first, enumeration of the characteristics, telling us the general nature of our subject-matter, and second, study of the facts in question, telling us the real essence of intensity which gives rise to the above characteristics.

The present paper will try to bring out the general characteristics of intensity; to this end we shall consider briefly some of the recent definitions.

The facts called intensive are of two kinds, psychical and physical. Examples of the former are, intensities of sensations, of images, of pleasure and pain, of affective states; of the latter, velocity, force, electric potential. As these facts seem to differ so widely, it is certainly not easy to pick out the properties, on account of which we label them all by the one name, intensity. Accordingly we find that the definitions given by psychologists differ more or less from

¹ Substantially that of Mr. Russell, 'Principles of Math,' Vol. I., pp. 182-3.

those of physicists, and also that the former do not all agree with one another. I give now some of these definitions in order that we may see where the obscurity and contradiction lie.

Every definition I have seen admits that intensities have the property of being greater, less or equal. Now for the points of difference.

The Century Dictionary gives a definition covering both fields. An intensity is a kind of quantity apprehended all at once, not by a successive synthesis; its parts are not separately identifiable. Professor Külpe² gives a psychological definition: an intensity has no parts; a louder tone-sensation does not contain softer ones, but is just one sensation, different from any softer one. The Dictionary of Philosophy and Psychology says that 'Intensive Quantity' does contain parts, although we can not distinguish them; the parts must really be there if it is to be a kind of quantity at all. In other words, there is no empirical evidence of parts, but we can not help believing that there are parts. Also under the heading 'Intensity' (which must mean intensive quantity since we are told intensity is a kind of quantity) we are told there is no whole-part relation. Now this seems a contradiction. And certainly the above conflicts with the view of Professor Külpe, and also with that of Professor Münsterberg³ that sensations are not complexes of parts nor even measurable. I may add also the view of Mr. Bradley,⁴ that psychical intensities are in principle quite measurable.

Here is a conflict of psychological views, then. Do greater and less imply that there are parts or not? Obviously we need to know what sort of greatness or smallness is in question. This ambiguity is revealed by the words of Mr. Stout,⁵ who says that intensive magnitudes have, properly speaking, no mathematical difference, though there is something analogous to mathematical difference. That is what causes the difficulty in defining intensity: we need to know how far the analogy reaches. Does intensive quantity reduce, after all, to extensive quantity? This is the problem raised by the psychological definitions. Can there be a kind of quantity which is logically incapable of addition or division, or other properties usually associated with measurement? And if we can without contradiction define such a kind, do we have a case of it in sensations, images, etc.? We shall now find the same problem confronting us in the field of physical intensities.

Here Professor Ostwald⁶ has given the most careful definitions.

² 'Grundriss der Psychologie,' p. 47.

³ 'Grundzüge der Psychologie,' Vol. I., p. 263.

⁴ *Mind*, N. S., 4, 1.

⁵ 'Manual of Psychology,' p. 206.

⁶ 'Naturphilosophie,' Lecture IX.

He uses the term *stärke* to denote intensity, and mentions two distinctions between *stärken* and extensive quantities: (1) *stärken* can not be superposed, while extensive quantities can, and (2) they can not be added. As to the first: you can not superpose one sensation on another, for it is a distinct individual event in time. You can, however, superpose one body on another; bodies therefore have extensive quantity, sensations are *stärken*. You can not superpose one interval of time on another, for then it would lose its temporal individuality; therefore time is a *stärke*. As to the second: you can not bring together two moving bodies and get twice the velocity by combining them. You can not join two bodies of equal temperature and get double that temperature. Therefore velocity and temperature are *stärken*.

Now addition is a condition of such measurement as we apply to extensive quantities, and superposition seems to be at least a criterion of our ability to measure such quantities. Where these are impossible, then, it would seem that measurement, of the kind applied to bodies in space, is in principle impossible. And yet the *stärken* undoubtedly have quantity, and are measured. But if they can not be added (and of course, consequently, have no whole-part relations) how can they be measured, and how can they be quantities at all? In short, we have the same problem as above: can there be a kind of quantity (for quantity it must be since it is measured) which is logically incapable of addition or division?

The special problem in defining intensity is, then: How can there be quantity without the whole-part relation? Or: how can there be measurability without addition? For physical and psychical intensities are certainly measured—the former more, the latter less accurately. Fortunately the recent development of the theory of order enables us easily to answer this question, and thus to solve the first part of our problem by enumerating the properties of intensity. We know now that it is possible to define a series each member of which may be greater than the one before it, such even that the difference between two next members is always the same, but that there will be no addition and no whole-part relation between any two members unless you assume the commutative and associative laws.⁷ Intensities might be ordered in such a series, at equal distances apart (*e. g.*, as in the just perceptible differences of Weber's law) and a kind of measurement which would correlate them to the number-series is then perfectly possible. Only we must remember that the larger ones are not *n* times the smaller ones in the sense that they contain them.

⁷ Cf. Russell, 'Principles of Mathematics,' Vol. I., Ch. XXI., especially p. 183.

Thus by considering the properties stated in the definitions of intensity we find it possible to frame a conceptual definition which seems to resolve their conflicts: intensities are characterized by greater, less or equal, and by absence of the whole-part relation, because they are describable in terms of order only. This confirms the above definitions except where they conflict with one another; it tells how far Mr. Stout's 'analogy to mathematical difference' can be carried, namely, up to the commutative and associative laws, but not including them. And it by no means reduces to extensive quantity, since it is a case of order.

As was stated at the outset, if we were giving a mathematical definition our work would be accomplished. But we are dealing with a category whose presence we wish to verify in experience, and our interest is more than conceptual. The above definition does not enable us to tell what facts are intensive with any great certainty. For are we sure that there is not a whole-part relation in some of these facts? Psychical states are often complex, apparently. Time, velocity, temperatures,—can they not in some sense be added? If time is a *stärke* as Professor Ostwald says, how comes it that a day seems to *contain* 24 hours? Does not a temperature of 90° include one of 50°? The difficulties of adding velocities and temperatures seem to be material ones, rather than logical ones, to a first inspection. If they are due to the nature of the facts and not to our defective methods (as Mr. Bradley seems to think, in the article above mentioned, is the case with sensations) can we not find some one criterion common to all these facts, which will show why in the nature of things no method could possibly turn them into extensive quantities? We know that anything spatial, except points, has extensive quantity, and perhaps it would not be going too far to say that *all* the extensive quantities of science are in the last analysis measured in spatial terms. Now is there not some equally simple criterion for intensive quantity? In short, we come now to the second part of our task. We must take up in turn the various facts called intensive, and ask what is that property in each one that makes possible the greater, less or equal relation but prevents addition and the whole-part relation.

W. H. SHELDON.

COLUMBIA UNIVERSITY.

MEETING OF EXPERIMENTAL PSYCHOLOGISTS AT
CORNELL UNIVERSITY

ON April 4 and 5 a number of directors of psychological laboratories and others immediately interested in experimental psychology met on the invitation of Professor Titchener at Cornell University, and in very informal sessions discussed a number of reports of experimental investigations. No formal organization with officers and constitution was undertaken, but the invitation of Professor Münsterberg to hold a similar meeting next year at the Harvard Laboratory was accepted, and it is expected that such meetings will be held regularly at the various psychological laboratories. The following papers were presented:

Experiments on Idiots: Professor E. C. SANFORD.

This was a report of tests of memory, attention, motor ability and discrimination as exhibited by a number of backward children. The difficulty of defining mental deficiency by any simple test was emphasized by the result that in certain respects children distinctly deficient showed very good standing in the elementary tests.

The Laboratory Investigation of Backward Children: Professor L. WITMER.

A report in detail of three cases which had been treated by a system of will-training, after examination at the Pennsylvania Laboratory. The report emphasized the value of such work as a means of collecting psychological facts.

Analysis of Movements made in Simple and Complex Reactions: Professor C. H. JUDD.

A report of results obtained at the Yale Laboratory by recording in full the movements made by the hand of a reactor during reaction experiments. The movement was shown to be in many cases very complex, thus making it clear that the time of a given reactor may vary greatly according as the mode of movement varies.

Shortest Reaction Values, and Sensory and Muscular Reactions: Professor L. WITMER.

A report of reaction experiments in which values as low as 50 sigmas appeared with a consistency too great to allow them to be eliminated as accidental. Also a criticism on the basis of given results of the theory of sensory and motor types of reaction.

The Simple Reaction as a Test of Mental Ability: Dr. C. N. WHIPPLE.

Such tests are wholly inadequate. This conclusion was supported by a critical examination of the work of earlier investigators where a different conclusion was reached.

The Psychological Term 'Observer': Professor C. E. SEASHORE.

In the absence of Professor Seashore the paper was read by Dr. J. W. Baird. It contained a discussion of the terms 'subject,' 'observer' and 'reactor,' insisting upon the desirability of a discriminating use of these terms. 'Observer' should be the general term for the person on whom an experiment is tried. 'Subject' should be used where this person is abnormal, and 'reactor' where some movement is required.

Eye Movements Studied by Photography, with Special Reference to the Mueller-Lyer, Poggendorff and Zoellner Figures: Professor C. H. JUDD.

A number of investigators at the Yale Laboratory are photographing the eyes during inspection of various illusions. The photographs are taken with an Edison kinetoscope camera. In connection with this work practice series with the various figures are being carried on, and photographs are taken to show the character of eye movements under natural conditions and after training. The closest possible relation exists between eye movements and the illusions in the figures studied.

An Apparatus for Investigating Torsion during Eye Movements, with some Results: Professor W. B. PILLSBURY.

A reading telescope was mounted so that its spider web could be made to coincide with some radial line of the iris. Torsion of the eye was thus measured as the eye moved from positions of primary and secondary fixation to points at the periphery. The measurements show no torsion during convergence. Other movements in which torsions appear seem to obey Donders' law rather than Listing's law.

Convergence and Accommodation in the Perception of Depth: Dr. J. W. BAIRD. Read by title.

Imitation of Tones, with and without Distraction: Professor C. H. JUDD.

Graphic records made on smoked paper directly from a phonograph diaphragm show the pitch of a tone sung by any subject. Such records were exhibited for tones repeated without distractions, and for other tones repeated in the presence of distractions. Distraction sometimes leads the subject to make an error in the direction opposite to the distracting tone.

Relative Legibility of the Small Letters: Dr. C. N. WHIPPLE.

Demonstration of apparatus together with some discussion of individual forms of letters.

Perimetry: Dr. J. W. BAIRD.

Hellpach's zone of complementary colors outside the zone of total color blindness at the periphery of the retina can be shown to be due to after images which are very much more marked at the periphery than in the center of the retina.

Influence of Closing Eyes on Attention Waves: Professor W. B. PILLSBURY. Read by title.

Fluctuations of Attention and Vasomotor Waves: C. E. GALLOWAY. Read by title.

Fluctuations of Attention: C. E. FERREE.

A series of experiments with visual stimuli of varying intensity and area. The results go to show that the fluctuations are not of central nervous origin, but are merely cases of retinal adaptation. Thus as the area grows large so that eye movements can not bring the light to an unadapted portion of the retina, fluctuation does not appear. Constant series of parallel variations go to show that fluctuation and retinal adaptation follow the same law.

A Study of Attention by the Method of Expression: H. C. STEVENS.

Plethysmograph and pneumograph curves were taken during various forms of visual, auditory and tactual attention. The pulse and respiration differ for the different types of attention, while the plethysmograph gives uniformly a negative curve for all forms of attention.

An Outline of an Experiment Investigating the Interrelations of Taste and Smell: MATILDE CASTRO (introduced by Professor J. R. ANGELL). Read by title.

Type vs. Instruction in Psychophysical Work: Professor E. B. TITCHENER. Read by title.

The 'Psychophysical Series' as a Training Experiment: Methods, Results and Computation: Professor E. B. TITCHENER. Read by title.

During the intervals between sessions the Cornell Laboratory was inspected under the guidance of Professors Titchener and Bentley. The last evening session was held in the Psychoeducational Laboratory. The equipment of this laboratory was examined under the guidance of Dr. Whipple, who also read a critical discussion of the A-Test, showing its inapplicability to school tests. Professor E. C. Sanford demonstrated a device for mixing gray and white disks, not by rotating the disks themselves, but by viewing them through a rapidly rotating prism. G. H. Sabine demonstrated a speed regulator for the von Frey Limen Gauge.

The papers were followed by full discussions which were very generally participated in by those in attendance. C. H. JUDD.

REVIEWS AND ABSTRACTS OF LITERATURE

The Groundwork of Psychology. G. F. STOUT. New York City, Hinds & Noble, 1903. Pp. vii + 248.

To those already acquainted with Dr. Stout's *Manual of Psychology* his *Groundwork* can be described best in these words taken from the preface:—"The aim of this book is to present a general view of mental process and mental development which shall be comprehensive and yet not vague and sketchy. I have attempted to omit all matter which can be omitted without interfering with my main purpose. Thus I have passed by all questions of detail connected with the Psychology of the Special Senses. My endeavor has been to present only what is essential to insight into the constitution of our mental life as a whole.

"The work is a new one. It is not an abridgment of my *Manual of Psychology*. Even where the matter presented is substantially the same, the mode of presentation is different. The two books have no more in common than is inevitable in works on the same subject by the same person. In some respects the *Groundwork* is, in my own opinion, an improvement on the *Manual*, because, since the *Manual* was written, my own views on certain questions have become more clear and precise. One distinctive feature of the present work is the free use which it makes of material derived from observation of young children."

The admirer of the *Manual* will doubtless praise still more this later book. Its style is admirably clear and concise and its exposition exact, consistent and accurate. The book is devoted largely to the explanation of the different psychical processes, chiefly those of cognition. The present reviewer finds the chapters on Retentiveness, Association and Reproduction, and also those treating Ideal Revival and the Productive Aspect of Ideational Process, especially valuable. To Dr. Stout's own chapter on Emotion is added one on the Sources of the Tender Emotion by Mr. A. F. Shand.

It seems superfluous to enter upon a criticism of the different doctrines of the book, for two reasons. First, they are already in large part familiar to the reader of the *Manual*, and secondly, they cover a very wide and inclusive field, in the opinion of the reviewer, authoritatively and accurately. One question may be profitably raised, however. Is Dr. Stout's *Groundwork*, as was said by Professor Taylor of the *Manual*, 'on the whole far and away the best text-book of Psychology for teaching purposes'? Our answer is, That depends upon what you want to teach. If the subjective processes are to be studied, 'yes'; but if we want a book to put into the hands of the youthful beginner, the average Junior, for example, the course of which this book might be an outline would, in our opinion, bid fair to inhibit forever all interest in Psychology rather than to arouse it and make it permanent. The best elementary book must proceed from that side of Psychology which brings it into closest touch with Biology, the more familiar science, must concern itself with those manifestations of mind which are most easily observed and studied, and

must deal with mental problems most likely to afford practical information; for, after all, a permanent interest in mental phenomena and their problems is the most valuable result a beginner's course can attain. This need some of our American text-books have, on the whole, met far better than those of Europe.

However, for a second, or advanced, course in General Psychology we should hardly find a briefer, clearer or better text-book than the *Ground-work*, nor will the mature student find a better book to give him concisely an 'insight into the constitution of our mental life as a whole.'

WESTERN RESERVE UNIVERSITY.

WALTER T. MARVIN.

The Definition of Will. F. H. BRADLEY. *Mind*, October, 1902, pp. 437-470; April, 1903, pp. 145-177; January, 1904, pp. 1-37.

In these three articles Mr. Bradley attempts to defend and explain more adequately his definition of will as, empirically considered, 'the self-realization of an idea with which the self is identified.' The definition is expressive of three main conditions: (1) the *self-realization* of an idea; (2) the self-realization of an *idea*; and (3) the identification of the self with the idea realized. The first condition is fulfilled only when there is an alteration of the 'here and now.' In this respect, volition differs from resolve and intention, since in these the alteration is directed upon that which is purely ideal. In discussing the second condition, Mr. Bradley launches vigorously against the view that there may be volition without idea, showing that such a view is based upon a misconception of the nature of an idea. What is meant (3) by the identification of the self with an idea is explained by a comparison of the not-self in theoretical and in practical consciousness. In the former, the not-self is simply an other than the felt self; in the latter, there is added to otherness the relation of opposition. In so far, then, as there is an idea of a change to be made in that which is thus opposed to the felt self, the idea of the change is identified with this self.

Thus far Mr. Bradley has assumed the truth of ideo-motor action. He now asks how it is that in volition the idea realizes itself. His answer to this is perhaps the most significant part of his papers. Desire and conation do not of themselves explain how any idea gains its reality. The bridge from inward to outward he finds in a "variety of special 'dispositions'" or tendencies. Given the special 'disposition' and the idea with which the self is identified, and a volition is the outcome. Will is no mysterious something standing over ideas and inexplicably deciding. Thus Mr. Bradley concludes that will is nothing 'original or ultimate or self-explanatory,' but is a result of that which is not volition. The ultimates would rather seem to be the 'dispositions' and the ideal contents, both being factors of the identifying self.

Mr. Bradley would not deny, it seems, that, even as thus analyzed into 'disposition' and idea-identified-with-self, Will is, nevertheless, a unique synthesis and by no means to be explained as mere sum of its conditions. He would only deny that it is a simple in the sense of being not a resultant of independently existing elements. He has made out a

strong argument for 'dispositions' or 'tendencies' as ultimate for psychological analysis. To be sure, the problem is thus only pushed a step further back, yet in that step considerable light has been thrown on the nature of Will, and several views now widely held have been discredited. Among other things, Mr. Bradley succeeds in disproving the assertion that there is a plurality of volitional types, that choice is coextensive with will, and that consent is its characteristic factor. His own definition is strongly substantiated, so far as an empirical proof may go.

H. A. OVERSTREET.

UNIVERSITY OF CALIFORNIA.

Untersuchungen über psychische Hemmung. III. Artikel. G. HEYMANS. *Zeitschrift für Psychologie und Physiologie der Sinnesorg.*, 34, 1, January, 1904, pp. 15-28.

In this article Professor Heymans extends his work on the measurements of inhibition to the investigation of the influence of an electric stimulation of the skin upon a simultaneous auditory impression. Two methods were used in demonstrating the inhibitory influence. The first was by measuring the period of audibility of the ticking of a watch of minimal strength (attention waves), the second was by determining the limen for sound by the direct method of minimal changes.

The first method showed that the periods of audibility progressively decreased with an increase in the current intensity. An attempt was made to apply the Müller form of the method of right and wrong cases to the results in an endeavor to determine the stimulus limen, but the attempt was a failure. There was apparently no direct relation between proportion of right cases and period of audibility. The direct measurement by minimal changes gave entirely satisfactory results. The limen changed from 25 to 94 with a change in current strength from 0 to 25. The values when plotted gave a straight line, with only insignificant directions of observed results.

The author overlooks the work of Breese and Taylor obtained by approximately his own first method. Taylor found, however, that there was quite as often a reinforcement as an inhibition, particularly with weak stimuli, and the reviewer has confirmed that result so frequently and with so many subjects in general laboratory work with students that it seems to him unlikely that all subjects would show the inhibitory effects that Heymans found for his two. It seems at least worth while to work over the field again with this point in mind, in spite of the consistency of the author's results.

W. B. PILLSBURY.

UNIVERSITY OF MICHIGAN.

JOURNALS AND NEW BOOKS

THE PHILOSOPHICAL REVIEW. March, 1904. Vol. XIII., No. 2. *The Eternal and the Practical* (pp. 113-142): JOSIAH ROYCE. - This article discusses Pragmatism. The writer proves that the prag-

matist can not defend his own position except by a non-pragmatic reference to a standard of truth other than the satisfaction of his momentary need. This transsubjective standard does not, however, involve an appeal to a world of realistic *objects*, which he rightly repudiates, but to other minds and ultimately to an Absolute. *Aristotle's Posterior Analytics: II. Induction* (pp. 143-158): JOHN WATSON.—"We may sum up Aristotle's view of induction somewhat as follows: (1) Induction comes to the aid of demonstration either by supplying the materials necessary for the demonstration of a 'fact' or by itself establishing the concomitance in a class of things of certain attributes. (2) No definition of an essential property . . . can be gained by induction. (3) Induction is . . . related to definition . . . and abstraction . . . but abstraction is prior to reflective thought, whereas induction is essentially reflective and proceeds by a definite method." *The Philosophical Work of Herbert Spencer* (pp. 159-175): JOHN DEWEY.—A sympathetic and discriminative appreciation of Spencer's life and work. He resembles Zola in that his work did not gradually develop but was the fulfillment of a preconceived plan; the style and tone of both writers is consequently peculiarly objective and lacking in personal warmth and color. Spencer moreover had quite unconsciously absorbed the individualism of the eighteenth century and expressed this attitude in nineteenth-century categories. His extraordinary influence is due to his original synthesis of the philosophic and the scientific aspects of the evolution doctrine. *Proceedings of the Third Annual Meeting of the American Philosophical Association* (pp. 176-206).—Reports of the Secretary and the Treasurer. Summaries of papers read at the meeting. *Reviews of Books* (pp. 207-232).—H. COHEN, *Logik der reinen Erkenntniss*, J. G. HIBBEN. C. RENOUVIER, *Le personnalisme*, ANNA A. CUTTER. C. A. STRONG, *Why the Mind has a Body*, C. M. BAKEWELL. J. ROYCE, *Outlines of Psychology*, MARY W. CALKINS. Summaries of Articles. Notices of New Books. Notes.

REVUE PHILOSOPHIQUE. 29^e Année. No. 3. March, 1904. *La Science Positive de la Morale* (1^{er}. Article) (pp. 225-241): CANTECOR.—The new movement in ethics (Lévy-Bruhl, Curkheim, Bouglé, Simmel) has the faults of positivism; it knows no duties beyond present needs, it reveals no goal of human labor, and is unjust to our craving for the ideal. *Ascétisme et Mysticisme* (pp. 242-262): B. DE MONTMORAND.—These are two aspects of one attitude, the former being the preparatory stage, of emptying the soul—"psychological simplification"—the latter the filling of the soul from a divine source. Mysticism is not mere inaction, but the perceiving of energy in order to action. *Saint-Simon Père du Positivisme* (fin) (pp. 263-287): G. DUMAS.—Comparison of Saint-Simon and Comte reveals identity of system; Comte simply had the learning, energy and coherence of thought to found a school of thought—which Saint-Simon lacked. *Revue Critique: Les principes des Mathématiques d'après M. Russell* (pp. 288-304): G. MILHAUD.—After exposition of the work the following criticisms are made: Mr. Russell's deductive account of mathe-

matics and logic as the combination of ultimate logical constants is insufficient; such combination is owing to the stimulus of intuition. His definition of the irrational as a class of rational numbers is not essentially different from Dedekind's. Many of the earlier concepts presuppose the later, e. g., one-to-one-correspondence, term, already include number which must be regarded as first given. *Analyses et Comptes Rendus*: F. PILLON, *L'Année Philosophique*; 1902: J. DELVAILLE. E. Lubac, *Esquisse d'un Système de Psychologie Rationnelle*: L. DUGAS. W. Jerusalem, *Einleitung in die Philosophie*: H. DAUDIN. A. Binet, *L'Étude Expérimentale de l'Intelligence*: B. BOURDON. Ch. Ribéry, *Essai de Classification Naturelle des Caractères*: P. MALAPERT. W. Gore, *The Imagination in Spinoza and Hume*: J. PHILIPPE. C. Patrick, *Studies in Psychology*: J. PHILIPPE. J. M. Baldwin, *Fragments in Philosophy and Science*: J. PHILIPPE. W. Wundt, *Grundzüge der Physiologische Psychologie*: H. PIÉRON. Th. Dahmen, *Die Theorie des Schönen*: C. LALO. W. G. Alexejeff, *Die Mathematik als Grundlage der Kritik Wissenschaftlichen Philosophischer Weltanschauung*: A. REY. A. Bastian, *Das Logische Rechnen und seine Aufgaben*: L. C. *Revue des Périodiques Étrangers*.

REVUE DE PHILOSOPHIE. 4^e Anné, No. 3. March, 1904. *Sur le Matérialisme Scientifique* (pp. 261-283): P. VIGNON. - Materialistic Monism is unsatisfactory in that each atom is treated as a separate ultimate being, and the logical rules of the system are products of the mind which they are meant to explain (*à suivre*). *L'Abstraction Scolastique* (pp. 284-298): V. BERNIES. - The scholastic 'intellectus agens' is an inconsistent concept, not useful to explain, not necessary or verifiable in consciousness. *L'Histoire du Droit et la Philosophie de M. Bergson* (pp. 299-306): C. BOUCAUD. - Duty should be viewed as a social product, from the dynamic, not the static and 'archeological' view, which deals in abstractions. *Un Épisode du 'Sophiste'* (pp. 307-325): CH. HUTT. - In this dialogue of Plato, Non-Being is elevated to the rank of Idea, which is contradictory to Plato's system and renders the dialogue suspect. *À Propos d'un Centenaire* (pp. 326-333): T. DE VISAN. - After giving some account of the life and personal habits of Kant, the author urges the study of Kant's earlier and lesser works as available for an understanding of the Critical Philosophy. *À Propos du 'Problème Morale'* (pp. 334-338): ABBÉ GAYRAUD. - In reply to G. Fonsegrive's paper in the last number it is argued that if God is *morally* anterior to our consciousness of duty, He must at the same time be *logically* anterior. *Réponse de M. Fonsegrive* (pp. 229-340). - The above criticism is based on a distinction between will and intellect which falsifies their nature, for each is but an abstraction. *Analyses et Comptes Rendus*: M. A. Dastre, *La Vie et la Mort*: COMTE DE VORGES. E. Gley, *Études de Psychologie Physiologique et Pathologique*: E. BARON. C. Gasca (editor), *Historia de la Filosofia del Siglo XIX*, por A. G. Izquierdo: J.-U. POITEVIN. *Collection: Les Directeurs de Conscience*: E. B. *Collection Scientia: La Spécificité Cellulaire*, etc.: E. B. Bourneville, *Récherches Cliniques et*

Thérapeutiques sur l'Epilepsie, etc.: E. B. E. Mathias, *Le Point Critique des Corps Purs*: A. P. Sommaires des Revues. Bulletin de l'Enseignement Philosophique. II^e Congrès International de Philosophie. Nomination. Notice Necrologique.

REVUE DE METAPHYSIQUE ET DE MORALE. January, 1904. XII., 1. *La Morale de Renouvier* (pp. 1-18): A. DARLU. This 'lecture' begins by giving us first an account of the spirit of the doctrine of Renouvier. Ethics in themselves are an autonomous science of conscience; with R. they are strongly 'personalistic,' every duty being simply the reverse face of the right of some other person, and authority itself deriving its origin and power from the spontaneous determination of freedom. For M. R. justice is everything in morals, the sum total of right and the sum total of duty; love indeed or charity may be detrimental to justice. The ideal order being other than the concrete order, consequently justice must vary according to the conditions of the facts. In the order of social economy, justice can be obtained, not through a deadly authoritative settlement (state socialism), but by the gradual improvement of morals and by free association. In the political order, war must be condemned, but universal federation is unpractical. Renouvier's ethics, to sum them up in one word, are the ethics of justice and peace. *Les Principes des Mathématiques, I. Principes de la Logique* (pp. 19-50): L. COUTURAT. - Toward the second half of the nineteenth century, a union was effected between logic and mathematics, mathematics constituting as their base the science of multiplicities and the science of series, while logic became the logic of relations and endeavored to demonstrate the mathematical axioms. It has been, therefore, established that mathematics are based on nine undefinable notions and twenty undemonstrable principles, which are notions and principles of logic itself. Modern logic, therefore, thus enlarged and developed, has supplanted the ancient merely Aristotelian logic. Among the results it has achieved up to the present, we may mention that it has established the vice of four syllogistic modes (Darapti, Felapton, Bamalip, Fesapo), and discarded three errors: (1) The supposed identity of the three principles of identity, of contradiction and of the excluded middle, (2) the supposed sufficiency of those three to found the whole logic (several other principles having been proved to be necessary), (3) the doctrine that every form of reasoning is reducible to syllogism. *Le Devenir et l'Idéal Social, à propos d'une brochure récente* (of Emm. Lévy) (pp. 51-56): F. RAUH. - The author of the pamphlet tried to establish that a new right of property, the 'collective right' has been gradually asserting itself in recent social evolution. *La Démocratie devant la Science* (pp. 57-73): BOUGLÉ. - Some have maintained that modern science condemns the democratic movement as contrary to the tendency of evolution. This charge may be answered in a twofold manner. First, by proving that those so-called laws are not conclusively established, and that, besides, they do not in fact contradict the democratic spirit. Secondly, as man is not merely a bodily organism, but at the same time a being endowed with a mode of

activity and life which is superior to the merely physical stage, he must therefore act on other principles than those of mere biology. The analysis of history will some day supply sociology with the moral prescriptions that must regulate human society, pure biology remaining a merely inferior science of physical organisms. At all events, the democratic movement will have to develop among the masses the conscience of individual life, but in proportion also the social spirit as its counterpoise. *Études Critiques. Sur la théorie géométrique du général de Tilly* (pp. 74-87): G. LÉCHALAS. — That geometry is analyzed as a geometry 'of numbers' independent from every spatial reality, a fresh proof that geometrical theorems are not bound necessarily with some external object. *Vers le positivisme absolu par l'Idéalisme par L. Weber* (pp. 88-108): E. CHARTIER. — Taking his departure from the idealistic Cartesian position, the author of this book concludes to the existence of the real as being the very research of the real. *Questions pratiques. L'Idée de Patrie* (pp. 109-136): A. FOUILLÉE. — Exclusive nationalism is at the same time a sociological error and an injustice. But the idea of 'fatherland' is rational in itself. Mankind, however, as an organic sociological whole is not yet, is 'in fieri,' as a rational ideal to be pursued. International solidarity must be superadded to the love of the 'patrie,' but must not destroy it. To deny the 'patrie' is the fact of chimerical minds. We must promote peace universal, but not at the cost of our own national existence; that is why, for the time being, general disarmament is practically impossible. *La Langue universelle* (pp. 137-147): A. LALANDE. — The creation of a universal artificial language, be it volapük or esperanto, is a possible and practicable undertaking, not as a substitute of national languages, but as an auxiliary international one. *Supplément. Notice néerologique, H. Spencer. Livres nouveaux* (twenty volumes are analyzed). *Analyse des Revues, Thèses de Doctorat.*

March, 1904. No. 2. *Les Derniers Entretiens de Ch. Renouvier* (pp. 149-185): L. PRAT. — Renouvier's most cherished doctrines, as summarily dictated by him during the last four days of his life, are here reproduced verbatim, including: the refutation of the infinite, space, the self, personality, evil, the future of philosophy, pity, the future of democracy. *Ce que la Médecine Expérimentale doit à la Philosophie* (pp. 186-210): F. COLONNA D'ISTRIA. — Scientific medicine has been influenced decisively by the philosophy of Condillac, through his disciples Pinel, Cabanis, Bichat — especially Pinel. *Les Principes des Mathématiques* (pp. 211-240): L. COUTURAT. — Cardinal number is defined by abstraction without a vicious circle, and is presupposed by order, which is more complex. Traction and negative numbers are generalized not from numbers (which are integers), but from relations between numbers. *La Raison et les Antinomies, 3^e. article* (pp. 241-258): F. EVELLIN. — As regards the third antinomy, only prejudice prevents our reconciling spontaneity and necessity. Law is the manifestation of will and implies apparent occasional deviation. The necessity-world is an abstraction. *Discussions: De 'devoir-faire' et le 'Devoir'* (pp. 259-269): A. FOUILLÉE. — The 'devoir-faire' doctrine does not imply necessarily a categorical imperative, but

the seeking of any end, categorical or hypothetical; it is therefore vague. *Étude Critique: L'Idée de Patrie* (pp. 270-278): P. LA COMBE. - Patriotism is not to be condemned, as many seem to think to-day, but is a natural stage in expansion of sympathy from family to all humanity. Even when our country is wrong we should assume its faults. It should not, however, control freedom of thought. *Supplement: 2^e Congrès Internationale de Philosophie*. New Books, Reviews and Periodicals. Doctoral Theses.

ZEITSCHRIFT FÜR PHILOSOPHIE UND PHILOSOPHISCHE KRITIK. Band 123, Heft 2. *Darstellung und Kritik von J. St. Mill's Theorie der inductiven Methode, Schluss* (pp. 121-151): H. REICHEL. - An inductive method is a *contradictio in adjecto*. Mill's method is based on a vicious circle. Of all philosophy Aristotle remains the old, Kant the new testament. *Religion und Entwicklung, Schluss* (pp. 151-162): H. SIEBECK. - In the highest stage of evolution, the spiritual, characterized by freedom, the distinction between evil and bad is of fundamental importance for the religious consciousness. Evil opposes life, and is necessary; the bad is a possible consequence of freedom. *Parallelismus oder Wechselwirkung? Schluss* (pp. 162-171): F. PAULSEN. - That parallelism is artificial is no objection to it. Its basis is the conservation of energy, which rests on the belief in the unity of reality itself. Professor Strong is hailed with joy as an ally. *Erkenntnistheorie des primitiven Denkens* (pp. 172-186): P. BECK. - Primitive man treats his illusions as uncontrollable realities. Ghosts, gases and shadows have for him the same kind of reality. So Plato, in denying that ideas are corporeal, meant only that they are not solid or liquid. Undoubtedly he thought them extended. (Conclusion follows.) *Der Wert der Wahrheit* (pp. 186-206): G. v. GLASENAPP. - The moral basis of science is the demand for uniformity therein. The value of truth for its own sake is that it reveals to us the unity of all things, and unites us with God. (Conclusion follows.) *Zur neuesten Litteratur der Philosophie in Ungarn*: Dr. Szilávik. *Critical Notices*, by Ziehen and others. - Th. Ribot, *Essai sur l'imagination créatrice*. W. Wundt, *Einleitung in die Philosophie*. Überweg-Heinze, *Grundriss der Geschichte der Philosophie, Dritter u. Vierter Teil*. E. Kuhnemann, *Grundlehren der Philosophie*. G. Ratzenhofer, *Positive Ethik*. J. B. Stallo, *Die Begriffe und Theorien der modernen Physik*, etc.

ANNALEN DER NATURPHILOSOPHIE. January, 1904. Band III., Heft 2. *Gedanken über Begriffsbildung und einige Grundbegriffe* (pp. 125-202): O. BÜTSCHLI. - There are no genuine concepts for single things. Judgments are based on the lack of any sense of difference or contrast between things and a concept, or between concepts. In mathematics the certainty of the judgments rests on the simplicity of the data. Cause and effect properly express merely the general fact of continuous succession. The scientist rightly seeks to reduce all succession to that of motion. Force is a wrongly formed concept. Purpose resides, not, *e. g.*, in the seed or in its environment, but always in a third and con-

scious person. It is introduced to explain sudden changes, and is dispensed with when, back of the apparent suddenness, there is found a gradual change. The ego and the non-ego are distinguished, just as red and blue are, by feelings. So there is a time feeling and a space feeling. *Anhang I.* The concept energy is of value in dispensing with the idea of continually operative forces; energy is not substantive. *Anhang II.* Time and space are empirical concepts. *Die Erkenntniss des Transzendenten* (pp. 203-233): F. BON. - Epistemologists overlook the distinction between the truth of, and the evidence for judgments; they err also in seeking the answer to this problem in states of consciousness. It is a question of truth, and to put the question, therefore, assumes the knowledge. *Ein Beitrag zur Definition von Genie und Talent* (pp. 233-237): V. FISCHER. - In terms of the factors of spiritual energy, talent grasps lightly, genius deeply; talent proceeds from great capacity, genius from increased intensity. *Critical Notices*, by W. O.-P. J. MOBIUS, *Ausgewählte Werke*. L. KELLER, *J. G. Herder und die Kultgesellschaften des Humanismus*. F. GOTTL, *Die Grenzen der Geschichte*.

ARCHIV FÜR SYSTEMATISCHE PHILOSOPHIE. February, 1904. Band X, Heft 1. *Auf wem ruht Kants Geist?* (pp. 1-19): E. ADICKES. - Every philosophical system is the special expression of a personality. Who would understand Kant must be his historian, not his student. Kant's spirit rests on no one; nor can any one say what Kant to-day would teach. *Anschauung und Beschreibung* (pp. 20-65): M. DESOIR. - Sensuous representations are never the proper content of word presentations; e. g., Heine makes a 'corpse-like odor' proceed from a plant, but no hallucination of smell is needed that the mind be excited as intended. Speech is not a continuation of the worlds of sight and hearing, but is a world for itself. *Der Stoff vom philosophischen Standpunkte* (pp. 66-97): J. N. SZUMAN. - The reality of all physical properties is that bodies act on each other. Duration and extension are grades of intensity of this activity. This theory is in harmony with that of Boscowich. *Bericht über deutsche Schriften zur Logik in den Jahren 1895-99. Fünfter Artikel* (pp. 101-126): E. HUSSERL. - This article is given to a discussion of Anton Marty's 'Über subjectlose Sätze und das Verhältniss der Grammatik zur Logik und Psychologie.'

KANTSTUDIEN. January, 1904. Band VIII, Heft 4. *Die Grundlagen der Geometrie nach Kant* (pp. 345-395): W. REINECKE. - In his doctrine of space and time Kant did not have in mind that physical experience which lay nearest him on account of his astronomical studies. He did not discriminate sharply enough between particular perceptions and the totality of nature. The purely formal foundations of geometry have objective validity because of their basis in time, not in space. *Die Erkenntnisproblem und Machs 'Analyse der Empfindungen'* (pp. 396-447): E. LUCKA. - Mach's fundamental error is to assume that experience is a concept ready to hand, needing no discussion. He also completely misunderstands the problem of substance; he confuses it with that of the thing-in-itself. *Kant in Holland* (pp. 448-466): VAN DER WYCK. - An

account of many followers of Kant in Holland. *Konjecturen zu Kants Kritik der Praktischen Vernunft* (pp. 467-471): E. WILLE. Critical notices: O. LIEBMAN, *Gedanken und Thatsachen*, F. MEDICUS. B. BAUCH, *Glückseligkeit und Persönlichkeit in der kritischen Ethik*, H. VAHINGER.

February, 1904. Band XI, Heft 1 and 2. *Kant. Zur Erinnerung an den 12. Februar 1804* (pp. 1-3): O. LIEBMAN. - A poem. *Nach Hundert Jahren* (pp. 5-20): W. WINDELBAND. - During the past century the greatest service of the critical philosophy has been the preservation of the spiritual content of human history. And its present task is to complete that service through a philosophy of religion. *Das Historische in Kants Religionsphilosophie* (pp. 21-154): E. TROELTSCH. - The place of history Kant sums up in the phrase, 'History serves only for illustration, not for demonstration.' His meaning, however, has never thoroughly been understood, owing to his diplomacy and compromise. In fact, Kant built the bridge between the Catholic and primitive Christian position and that of the modern world. *Immanuel Kants philosophisches Vermächtnis* (pp. 155-195): F. HEMAN. - The causes for the early departure of his successors from Kant's position and the weaknesses of the Kantian revival are traced in detail. Some of Kant's latest words and writings are discussed. *Die Persönlichkeit Kants* (pp. 196-211): B. BAUCH. *Kants Bedeutung für die Pädagogik der Gegenwart* (pp. 211-245): F. STAUDINGER. - The formalism of the Herbartians stands to-day in need of the lessons of the critical philosophy. *Herder und Kant* (pp. 246-260): E. KUHNEMANN. - Kant freed man's intellect without depriving him of a vital belief in God. It is this problem of the nature of God that separates Kant and Herder. *Helmholtz in seinem Verhältnis zu Kant* (pp. 261-285): A. RIEHL. *Zum hundert jährigen Todestage Kants* (pp. 286-291): F. PAULSEN. *Emerson und Kant* (pp. 292-306): G. RUNZE. - Emerson's poetic insight brought him nearer to Kant than were those philosophies through which alone he actually came in contact with the Kantian school. *Kant im Spiegel seiner Briefe* (pp. 307-320): F. A. SCHMID. - Kant's amiable and social character is compared with his comparative isolation from the best in the life of his day. *Die Neue Kant-Ausgabe und ihr erster Band* (pp. 321-341): E. v. ASTER. *An die Freunde der Kantischen Philosophie*: H. VAHINGER.

ZEITSCHRIFT FÜR PSYCHOLOGIE UND PHYSIOLOGIE DER SINNESORGANE. Jan.-Feb., 1904. Bd. XXXIV., Hft. 1-2. *Untersuchungen über die Herabsetzung der Sehschärfe durch Blendung* (pp. 1-14): A. BORSCHKE. - Small, just noticeable differences of brightness disappear upon the entrance of a brighter light into any part of the retinal field. The author studies the degree of this 'Blendung' effect in different individuals; he finds marked differences, but attributes them rather to differences in sense discrimination than to differences in 'Blendung.' *Untersuchungen über psychische Hemmung. V. Die Verdrängung von Schallempfindungen durch elektrische Hautempfind-*

ungen (pp. 15-28): G. HEYMANS. - The ticking of a watch which could be heard almost uninterruptedly in the absence of disturbing sensations was rendered unnoticeable more than half of the time by a faradic current applied to the skin; the stronger the current, the higher was the auditory threshold raised. *Über Farbenkenntnis bei Schulkindern* (pp. 29-47): M. LOBSIEN. - Red was named correctly by all children from the age of 8 up; blue almost as well; yellow and green not quite so well in the earlier years; orange, indigo and violet were seldom so named, and often unnamed, up to the age of 13. Red was usually preferred to any other color with which it was shown. Blue and green were also favorite colors; orange and yellow were usually rejected in comparison with other colors. No especial changes appeared at puberty; no indication of 'color types' was obtained. *Leib und Seele-Eine Auseinandersetzung mit Professor Stumpf* (pp. 48-51): C. A. STRONG. - Starting from the premises of panpsychism—causal relations between psychic beings, evolution fundamentally a psychical process—one can explain the riddle of panpsychism, *i. e.*, why reality appears in the dual aspect of psychical and physical. This double appearance is made necessary by the struggle for existence within the psychical world, resulting in the development of the power of perception. *Literaturbericht* (pp. 52-80). *Das Geschmacksvolle als Besonderheit des Schönen und speziell seine Beziehungen zum sinnlichen Geschmack* (pp. 81-110): G. M. GIESSLER. - The tasteful differs from other forms of the beautiful in that (1) it includes only what is pleasing, (2) it is, in any instance, composed of many elements, none of which is distinctly subordinated to the rest, (3) it includes scarcely any reference to human interests, scarcely any personal emotion. Esthetic taste is closely analogous to sensible taste; it is an idealized representation of pleasing bodily states. *Über die Abhängigkeit der Pupillarreaktion von Ort und Ausdehnung der gereizten Wetzantfläche* (pp. 111-131): G. ABELSDORFF and H. FEILCHENFELD. - With increase in the area of the retina stimulated goes a corresponding (arithmetical) increase in the sensitivity of the pupillary reflex. The sensitivity decreases toward the periphery of the retina, but less in the dark- than in the light-adapted eye. The reflex that occurs in stimulation of the periphery can not be due exclusively to simultaneous stimulation of the fovea. A monocular stimulation causes less narrowing of the pupil than a binocular. *Das Leuchtturmphänomen und die Scheinbare Form des Himmelsgewölbes* (pp. 132-140): F. BERNSTEIN. - The pencil of rays thrown horizontally by a lighthouse appears curved in a definite way, to an observer located below the lighthouse. This affords a means of studying the apparent form of the heavens. *Literaturbericht* (pp. 141-160).

Iverach, J. *Descartes, Spinoza and the New Philosophy*. New York: Charles Scribner's Sons. 1904. xii + 245 pp. \$1.25.

Johnson, William H. *The Free-Will Problem in Modern Thought*. Columbia University, Contributions to Philosophy, Psychology, and Education, x, 2. New York: The Macmillan Co. 1903. 94 pp. 75c.

- Luckey, G. W. A. *The Professional Training of Secondary Teachers in the United States*. Columbia University Contributions to Philosophy, Psychology, and Education, XII, 1-4. New York: The Macmillan Co. 1903. 392 pp. \$2.00.
- Shaler, Nathaniel S. *The Neighbor, the Natural History of Human Contacts*. Boston and New York: Houghton, Mifflin & Co. 1904. 12mo. x + 342 pp. \$1.40 net.
- Thorndike, E. L. *Heredity, Correlations and Sex Differences in School Abilities*. Columbia University Contributions to Philosophy, Psychology, and Education, XI, 2. New York: The Macmillan Co. 1903. 50c.
- Willoughby, Westel W. *The Political Theories of the Ancient World*. New York: Longmans, Green & Co., 1904. 8vo. 302 pp. \$2.00.

NOTES AND NEWS

THE Oxford convocation has passed a decree accepting with gratitude a donation by Pandit Shyámaji Krishnavarmá, M.A., of Balliol College, for the establishment of an endowment in memory of the late Herbert Spencer, the endowment to take the form of an annual lecture, with a provision that a 'Herbert Spencer' prize may, if desired, with the consent of the founder during his lifetime, be substituted for the lecture.

OWEN'S COLLEGE, Manchester, has received about \$1,500 to establish a lectureship as a memorial to the late Professor Adamson, who was for many years professor of philosophy at the college.

PRINCIPAL C. LLOYD MORGAN, of University College, Bristol, has been offered the honorary degree of LL.D. by the University of Wisconsin, but has been unable to accept the honor because he can not attend the ceremonies connected with the celebration of the fiftieth anniversary on June 9.

THE announcement of several new appointments in the department of philosophy and psychology, at Johns Hopkins University has been made: Lecturer in Experimental Psychology (1904-5), Professor E. W. Scripture, of Yale University and the Carnegie Institution; Lecturer in Optics and Logic, C. Ladd Franklin, Baltimore; Lecturer in Physiological Psychology, Clarence B. Farrar, M.D., of the Sheppard Hospital.

YALE UNIVERSITY has issued a syllabus of Silliman Lectures for 1904. There are to be ten lectures on the general subject 'Integrative Action by the Nervous System,' by Professor Charles S. Sherrington, M.D., LL.D., F.R.S., of the University of Liverpool.

PROFESSOR GEORGE TRUMBULL LADD completed, on April 19, a course of five lectures at Columbia University, on 'The Psychology of Religious Experience.' On Monday evening, April 18, he met the Psychological Journal Club for a general discussion of the subjects of his lectures.

THE JOURNAL OF PHILOSOPHY

PSYCHOLOGY AND SCIENTIFIC METHODS

A NATURALISTIC THEORY OF THE REFERENCE OF THOUGHT TO REALITY

IN a paper called 'The Function of Cognition' which he published in *Mind* for 1885, Professor James set forth a theory which seems to me perhaps the most brilliant and original, and certainly the most far-reaching in its consequences, of all his contributions to thought. This theory has hitherto attracted little attention. Scarcely a reference to it is to be met with in later literature. And yet, if prediction were anywhere a thing to be attempted, I should be willing to risk a good deal on the prophecy that it is destined to form one of the foundation-stones of the evolutionary psychology of the future.

The subjective side of this theory was acutely and ably worked out by Dr. Dickinson S. Miller, in an article on 'The Meaning of Truth and Error' which he contributed to the *Philosophical Review* for 1893. In a later paper called 'The Confusion of Function and Content in Mental Analysis,' read before the American Psychological Association at its Columbia meeting in 1893 and published in the *Psychological Review* for 1895, Dr. Miller applied the theory to the problems of conception and belief, drawing the important distinction which appears in the title of the paper. Finally Professor James, in his presidential address on 'The Knowing of Things Together,' delivered at Princeton in 1894 and published in the *Psychological Review* for 1895, restated his theory briefly, acknowledging obligations to Dr. Miller for reconfirming his belief in it.

Now that the doctrines of the voluntarists and the pragmatists have given greater fluidity to our conception of knowledge, encouraging us to look at it not only as a thing serving a practical end but as a thing evolved, while this evolutionary view of knowledge is thought by many to discredit the existence of a reality beyond knowledge to which knowledge refers, it seems to me that the time

has come for the James-Miller theory to play its part in the discussion. My object in this paper is to present a brief summary of it, referring the reader to the articles above mentioned for fuller acquaintance with it, and to propose certain additions which seem to me necessary to make of it a fully equipped working theory.

The central idea of the theory is nothing less than that knowledge is not an ultimate conception. The relation of cognition, by which a mental state transcends itself and lays hold of a reality beyond it—that, for instance, by which a memory has to do with a past experience, or a perception with the other sides and the future existence of the object, or a conception with a whole class of things, or a thought with, say, another person's mind—this supposedly mysterious relation is capable of analysis without remainder into the two commonplace and almost physical relations of resemblance and what Professor James calls 'operation.'

Imagine, he says, an existing reality *q*. Now let a feeling come into existence resembling the reality—a feeling having the quality *q*. We can not yet say, simply on the basis of the resemblance, that the feeling knows the reality. "Eggs resemble each other, but do not on that account represent, stand for, or know each other." But let the feeling, in addition to resembling, operate upon (or enable us to operate upon) the reality, and the relation forthwith becomes one of cognition. In virtue of the ties of resemblance and operation which connect the feeling with the reality, we may say that the latter is known to the former.

Cognition, in short, is nothing but a way of entering into relations with a reality. We enter into relations with it by having a feeling which resembles it and enables us to operate upon it. There is nothing further in cognition.

A mental state, then, in knowing a reality, does not pass bodily outside itself and 'intuite' the reality, but is connected with it by a purely external relation. "A feeling feels as a gun shoots. If there be nothing to be felt or hit, they discharge themselves *ins Blaue hinein*. If, however, something starts up opposite them, they no longer simply shoot and feel, they hit and know." The feeling is immediately acquainted only with its own quality, with its own subjective being; but since this quality resembles and brings us into the right practical relations to the reality, we say, when we consider the relations of the two retrospectively, that the feeling knows the reality.

In order that a mental state should know, then, it is not necessary that it should *mean* to know, or *know* that it knows—that it should 'point to' or 'intend' its object. Here we come to the subjective side of the theory, so effectively worked out by Dr. Miller.

The current notion that in knowing we somehow consciously aim at the reality, are aware of our distinctness from it and our will to represent it—that in memory, for instance, we are aware that the past experience is other than the remembering state, instead of simply being naïvely lost in the contemplation of it—this notion is not borne out by psychological analysis. It rests on a confusion between the point of view of naïve memory and that of later reflection. In looking back, we can distinguish the remembering state as a subjective fact from the reality it served to represent, and so know that we knew: at the first moment all we can do is to know, to be naïvely absorbed in the knowing.

So far Professor James and Dr. Miller.¹ In suggesting certain additions to the theory which seem to me necessary to make it complete and workable, I shall ask the reader to look at knowledge, first, in so far as it is a fact in the physical world. When I perceive a tree, light-rays from the tree outside my body have affected my retina and called forth by means of nerve-currents a brain-event in the occipital regions of my cortex. This brain-event enables me to adjust my relations to the tree, *e. g.*, to go out of the way if it stands directly in my path. Either in itself, or by calling forth

¹I subjoin a few quotations from Professor James's articles in further elucidation of the text. 'The Function of Cognition,' p. 33: "The point of this vindication of the cognitive function of the . . . feeling lies . . . in the discovery that *q* does exist elsewhere than in it. . . . But the feeling itself can not make this discovery. Its own *q* is the only *q* it grasps; and its own nature is not a particle altered by having the self-transcendent function of cognition either added to it or taken away. The function is accidental; synthetic, not analytic; and falls outside and not inside its being." Ibid., p. 38: "We can say that any other feeling will be held cognisant of *q*, provided it both resemble *q*, and refer to *q*, as shown by its either modifying *q* directly, or modifying some other reality, *p* or *r*, which the critic knows to be continuous with *q*. Or more shortly, thus: *The feeling of q knows whatever reality it resembles, and either directly or indirectly operates on.*" 'The Knowing of Things Together,' pp. 108, 109: "At the very least, people would say that what we mean by knowing the tigers is mentally *pointing* towards them as we sit here. But now what do we mean by *pointing*, in such a case as this? . . . The pointing . . . is known simply and solely as a procession of mental associates and motor consequences that follow on the thought, and that would lead harmoniously, if followed out, into some ideal or real context, or even into the immediate presence of the tigers. . . . In all this there is no self-transcendency in our mental images taken by themselves. They are one physical fact; the tigers are another; and their pointing to the tigers is a perfectly commonplace physical relation, if you once grant a connecting world to be there. In short, the ideas and the tigers are in themselves as loose and separate, to use Hume's language, as any two things can be; and pointing means here an operation as external and adventitious as any that nature yields. . . . In representative knowledge there is no special inner mystery, but only an outer chain of physical or mental intermediaries connecting thought and thing."

other brain-events representing the shock and pain of collision with the tree, it enables me to innervate my muscles in such a way as to go out of my path. Now, observe the relations between this brain-event and the extra-bodily tree. In the first place, there is a resemblance. That the retinal event which calls the brain-event forth resembles the tree, is obvious; the whole *raison d'être* of vision, as an instrument of adjustment to external objects, lies in the securing of such an intra-bodily image. And, though the visual brain-event can hardly resemble the extra-bodily object as closely as the retinal image does, we may assume that the resemblance is not wholly lost, but that there remains to the end at the very least a relation which we may call correspondence. Secondly, the brain-event 'operates' upon the extra-bodily object, in this sense, that it enables us to adjust our relations to it. This may involve actual operation upon the object, or it may involve merely action with reference to it, as where, in the case of the tree, we turn out of our path.

Here, then, we have, between the visual brain-event and the extra-bodily object, the two elements which, according to Professor James, go to the making of the relation of cognition. The visual brain-event is the authorized representative of the external tree within the body; it is, as Huxley says, "a sort of physical idea." Moreover, the body acts, upon occasion of this brain-event, as if what it had to do with were not the brain-event but the extra-bodily object. This peculiar manner of action gives to the brain-event a sort of extra-bodily reference. It establishes between it and the tree a relation which, without too great a stretch of language, I think we may call quasi-cognitive.

But note, now, that the causal relations mentioned by Professor James are those only which run, if I may so say, from the brain-event to the object; whereas this brain-event, with its resemblance to and power to operate on the object, would never have been called forth at all had it not been for preceding causal relations running from the object to the brain. These causal relations, represented by the light-rays and the nerve-currents, are the *conditio sine quâ non* of the production of the brain-event; the least interference with them leads to an alteration or suppression of the brain-event, so that it no longer, or no longer correctly, represents the object. These causal relations, then, are the channel of cognitive communication, so to speak, between the brain-event and the object, and it is obvious that the relation of resemblance, which is the condition of correct representation and appropriate response, is only an incident of them. Finally, note that the possibility of both kinds of causal relations, with the resemblance they include, depends on the spatial proximity of the tree to the body. If the tree were a hundred miles

away, it would not be possible for the body to enter into such quasi-cognitive relations to it.

The relation of cognition, then, as it appears in the physical world—or of quasi-cognition, perhaps it would be better to say—may be resolved without remainder into two sets of causal relations, one running from the object to the brain and involving resemblance, the other running from the brain back again to the object; and these causal relations are rendered possible by proximity in space.

All this while, I have said not a word of the perception which accompanies and, according to the unimpeachable testimony of physiological psychology, corresponds to the brain-event. And indeed, to delay as long as possible our involvement with psychophysical and metaphysical theories, I prefer to discuss first the parallel case of memory.

Memory depends for its possibility on what is called physiological retention: that is, on the fact that, after having operated in a certain way once, the brain is capable of operating in the same way again, in the absence of the external stimulus which was necessary on the first occasion.

Now, it is evident that the later brain-event resembles the earlier, and that we remember the earlier experience correctly only so far as this is the case. Moreover, it is obvious that this resemblance depends on causal relations, by which the earlier activity modifies the structure of the brain, that structure is conserved, and the conserved structure gives rise to the later activity. The channel of cognitive communication between the later brain-event and the earlier is to be found, then, in this chain of physical causes and effects; and any interference with it during the interval, as, for example, by a brain-lesion, may result in the alteration or total suppression of the later activity. Here, then, we have the same elements of a quasi-cognitive relation as before, except that it is not obvious how the later brain-event can react or 'operate' upon the earlier.

The fact is that 'operate' is an inexact expression. We have to do with causal relations, but not necessarily with causal relations that influence the object; the strict form of statement would be that we 'act with reference to,' or 'adjust our relations to,' the object. Now, this we evidently do in memory: the attitude is one of pure contemplation, or, it may be, of resignation, of acting as if it were useless any longer to act. Or, perhaps, in addition to this, the memory becomes to us by association a spur to present action, a guide in avoiding pitfalls and performing duties that we have learned of in the past. I can not resist the conviction that what is called 'reference to the past,' considered as something apart from all images, is simply a matter of this motor attitude.

We have been speaking, so far, simply of the physical side of memory. But, inasmuch as the reality known here is a well-defined mental state, we may make the application to the psychical side without fear of theoretical entanglement. A memory consists of images reproducing a past experience with its surroundings and date, and in addition to these there is nothing but the fact that we act as if the experience were no longer real, and perhaps also speak the word 'past.' The images resemble the past experience, they are its remote effect, and they enable us to act—there is nothing further in memory.

When we pass to the case of perception and consider the relations of things on the psychical side, a difficulty arises through the fact that there might appear to be here no reality distinct from the perception and bearing the same relation to it that the extra-bodily tree bears to the brain-event. And there can be no question that perception is not, in appearance at least, a form of representative knowledge like memory. It never occurs to the plain man that behind the thing he perceives there may be a thing-in-itself. On the other hand, I venture to assert that it will be found impossible to square the facts of perception with the physiological data above set forth as to its conditions without the help of a panpsychist or other realistic theory. It is possible, of course, to ignore the physiological facts, to reason in all respects as if they were non-existent, or again to adopt the device of considering that they are simply other facts of perception, on a footing with the object perceived, and so to abolish their significance. The trouble is, that this leaves wholly unexplained the surprising fact that the occurrence of the tree *quâ* perception is conditioned on the occurrence of the brain-process *quâ* physical event. But I will not attempt to argue in a paragraph a question discussed at length in my recent book *Why the Mind has a Body*. I will content myself with pointing out that, granting a thing-in-itself behind the phenomenal tree, the perception becomes a representative of it and a means of adjusting our relations to it, in exactly the same way in which the memory is a means of adjusting our relations to the past experience. Here, then, as before, we find the cognitive relation to be resolvable into the two elements of resemblance or correspondence ('symbolism') and causation.

Coming now to conceptual knowledge, we must distinguish cases where the object conceived is a concrete individual from cases where it is a class of things or an abstract quality. When I think of Oliver Cromwell, says Professor Royce (*Spirit of Modern Philosophy*, p. 369), Cromwell "is not just now causing any ideas in" me; and, since resemblance of itself can not constitute cognition, he concludes that the cognitive relation is irresolvable and unique, that it con-

sists in a conscious 'pointing' or 'meaning'—a relation which in *The World and the Individual* he amplifies into a deliberate conscious effort on the part of the idea to represent its object (see vol. i., pp. 24, 25 and 31).² But, if I think of Oliver Cromwell now, my thought is not so independent of causal relations as it might at first sight appear. Cromwell's figure impressed his contemporaries, they recorded their impressions in books, the books have come down to our day and their contents passed over into current histories, some of which I have read, etc.—a tangled network of causal relations, no doubt, but without them I should not now be thinking of Oliver Cromwell.

In the conception of a class of things, the presence of causality would, I think, be demonstrated by a study of the manner in which in the child's mind the conception of a class of things grows up. The spoken name at first signifies an individual, or a pair of individuals; only gradually, and as a result of repeated application to new individuals, does it lose its particularity and acquire general significance.³ The function of the concept when fully formed is, as Professor James says, to 'lead to' or 'terminate in' the particulars of which it is the sign; that is to say, either it conducts us by association to the thought of a particular object, or it enables us to 'act with reference to,' to 'adjust our relations to,' the qualities of particular objects. It enables us to do this both in overt action and in the sequence of our thoughts. Now, to subserve this function properly, the concept must usually, in its immediate being, be a blurred image or a dim proleptic sense of the particular things it represents, and here we have resemblance; while, at the same time, it is on the one hand an effect of the particular things, on the other hand a means of acting and thinking with reference to them, and here we have causality. For a fuller working-out of the theory in its application to the case of conception, I must refer the reader to pp. 39-42 of 'The Function of Cognition' and to pp. 537-543 of 'The Confusion of Function and Content.'

I hope, despite the necessary brevity of this article, that I have succeeded in putting the James-Miller theory in such a way as to make it appear a not wholly unpalatable account of the way in which thought refers to reality. I need not say that, in my own view, the reality to which thought refers is not something different

² This notion of 'pointing' or 'meaning' is so fundamental a one in Professor Royce's system, that I am not quite sure what the result of its abandonment would be, *e. g.*, as respects the theory of a universal consciousness.

³ The doctrine sometimes broached that the general is prior to the particular seems to me to rest on a confusion between the vagueness of ignorance and the universal reference of thought.

in nature from thought and more real than it, but simply other experience than that which constitutes the reality of the thought.

There is one objection to the theory to which I am concerned to reply in closing. I shall be told that this theory may be all very well as psychology, but that it never will do in epistemology. You are able, it will be said, to construct this skeptical theory only because you as critic conceive yourself outside the mind and looking on, conceive yourself beholding both the memory and the past experience, both the perception and the thing-in-itself. If you too were dependent for your knowledge upon the subjective states which are all you will admit to be immediately given, the complete uncertainty of anything beyond them would reveal itself clearly, and your theory go to pieces.

To which I reply, that I as critic learn of *my relation* to past experiences and to other minds solely by means of the subjective states which I attribute to naïve knowers. But the practical habit of the race, the instinct of acting and thinking as if we had to do with an independent reality, is strong in me, and it makes that experiencing into knowledge. And the James-Miller theory is simply, as it seems to me, the correct analysis of the experiencing, with the refusal to renounce this immemorial habit of the race.

C. A. STRONG.

COLUMBIA UNIVERSITY.

A STUDY OF INTENSIVE FACTS

IN the preceding paper¹ we discussed some of the definitions of intensity given by authorities, and learned that its characteristics were, the property of being greater, less or equal, and the inapplicability of addition and the whole-part relation. But since we had not shown why some facts *can* be thus described and others obviously *can not*, it seemed that we had not gone to the root of the matter. Our definition remained a mere subjective group of categories which apparently could apply anywhere we pleased. We had not yet by study of the facts discovered that property peculiar to each and every actual intensity which allows to it magnitude and denies it the whole-part relation. To this study of cases, the second part of our task, we now proceed.

We begin with time. I try to show that it is a genuine intensity, and that the reason lies in that property, peculiar to time, of being a series of individual moments which can not recur—or, to put it in

¹ JOURNAL OF PHILOSOPHY, PSYCHOLOGY AND SCIENTIFIC METHOD, Vol. I., No. 9.

one word, that it is transitive. I then go on to show that every intensive fact has this same temporal property, and, therefore, that the source of the intensive characteristics lies in their temporal or transitive character. As space is the empirical criterion of extensive quantity, then, so time will be that of intensive quantity.

Time, then, is to be shown to satisfy the above definition of intensive quantity. The argument will be first that in actual time-measurement we *use* none but ordinal notions, and second that no whole-part relation, no addition, in short, no notion of extensive quantity is *implied*.

When we measure a time-length we make use of some process which is repeated continually: the revolution of the earth about its axis, the repeated journey of the clock's hands, the swing of a second-pendulum. We express the amount of time-length by saying (for example) 'it occupied 50 seconds,' that is, 50 repetitions in order of a certain standard process. Now the first thing that strikes one here is that nothing is said about the length of each repetition. Each swing might be longer than the last if the other processes in the world lengthened correspondingly, and it would make no difference to our calculations. Now if the amount of time-length is indifferent it shows that it is useless (though of course not necessarily erroneous) to consider it at all. The needs of scientific prediction are satisfied without our believing in the absolute equality of all the cases in the series, for we do not want to predict *how long* we shall have to wait for a given event to occur, but only *at which repetition*, in the future, of the standard process, the event in question will occur. Nor is the matter altered when we consider the agreement of independent time-keepers. If the different series of events only continue uniform with respect to each other, science can predict just as well. For that is all that agreement of independent time-keepers means. If the clock ticks just as many times one year as the next, it simply means that the stages in the motion of the earth can be exactly correlated with those of the clock-hands, and if all the independent cyclic processes agree, it simply shows that they all keep step together,—it does not show that the stride is not lengthened or shortened. It is often said² that we have to assume uniformity to measure time; but it is not uniformity within any one series—only between various independent series. 'Absolute time,' says Professor Mach,³ 'has neither a practical nor a scientific value,' and if here we mean absolute quantity of time in the extensive sense we must certainly agree. At the same time one might, with Mr. Russell,⁴ regard time

² Cf. E. H. Rhodes, 'The Scientific Concept of the Measurement of Time,' *Mind*, X., 347.

³ 'Science of Mechanics' (Eng. transl.), p. 224.

⁴ 'Is Position in Space and Time Absolute or Relative?' *Mind*, N. S., 10, 293.

as absolute, though only as an order. At any rate, 'the question whether a motion is itself uniform' is, if not 'senseless,'⁵ at least useless. Equal times for science mean the same process or the same number of repetitions thereof. Actual time-measurement, then, does not make use of the notion of absolute equality; it uses only ordinal notions. However, as we shall see, equality is quite possible in a purely ordinal series, and for psychological reasons must be admitted to time-lengths. I wish only to point out at present how far scientific measurement of time, which is supposed usually to imply that it has the properties of extensive quantity, actually is from doing this.

Nevertheless the objection seems inevitable that we have in the *number* of repetitions a divisible quantity just as much as in space; that we have been surreptitiously using the idea of extensive quantity; that even in saying it did not matter whether the earlier cycles equal the later in length we had to speak as though all of them had *some* amount, though we could not determine that amount. So we must now ask: even granting that we use explicitly no other ideas than those of order, are not other ideas such as addition and division (wholes and parts) implied? To put it in another way: how can you define time-length except by numbers that can be added and divided?

The case of time-length differs from that of the length of a straight line in space in that all the elements of the latter coexist, while in time this is not so. The past does not coexist with the present. One might go so far as to admit that many facts or events which have gone into the past can be recalled in memory, or even can be repeated existentially. But at any rate a past moment (considered separately from the event in that moment) can not itself be recalled. Otherwise it would be meaningless to say that time is an irreversible series. We doubtless have present ideas (memories) that refer back to past events, but we can not go back to the real past. Now this is the reason why time can not be an extensive quantity like space: because you can not have a whole of parts unless the parts are all there to make up the whole, and by definition this is not so in time. And here is where a time-series differs from the ordinal numbers. The latter are coexistent, for you presuppose that you can survey them in reverse order, and it is for this reason that the commutative and associative laws can be proved by their aid. But the commutative law can not be proved of a series of moments in time, just because you can not reverse the order. And if so, addition is impossible, and with it the kind of measurement applied to extensive quantities. I do not deny that time-measurement is

⁵ 'Science of Mechanics' (Eng. transl.), p. 224.

possible. It is, however, a measurement like that of degrees of loudness or of any qualitative difference. It is the correlation of time-lengths with the whole numbers, with the restriction that the former are not, like the latter, divisible or addible. Thus, we can say four days are twice as long as two days if we mean only that a certain process repeated four times is that same-process-twice-repeated twice repeated. Logically we can not without contradicting the meaning of pastness go any further. A time-length, then, is to be defined as the relation between one moment and a later moment, which conforms to our definition of intensity. It has greater, less and equal (for our immediate judgments of time-perception, especially in rhythm, show this); it is apprehended all at once, when the length is completed; it is not a whole of parts, nor can it be added to make a whole; it can, however, be as exact as you please, for it can be correlated with ordinal numbers as regards its value. Exactness, however, by no means implies addition, multiplication or division. Its value is defined by the ordinal number of standard events between two terms.

Mr. Russell⁶ says that by a simple convention we can extend addition to all magnitudes, intensive or otherwise. The convention is that in the series $a_0a_1a_2$, etc., where all the terms are an equal distance apart, a_0a_n is n times a_0a_1 . And it is just this convention we should have to make in the case of time-lengths. But we must remember that here it is not merely a convention, but a convention that is not directly true of time.

It will be seen from the above account that the reason time is not an extensive quantity lies in its property of vanishing or its transitivity. In a whole each part has, by the commutative law, the property that it may be taken after or before *any* other part, so long as it is taken but once. In an ordinal series, each element is, as regards its place before or after any other, individuated. Thus in extensive quantity the part or element is in respect to place universal; in order, individual. To get from one moment in time to another we must go in a determined order through certain moments and no others. Time is thus an individuated series, and any time-length is a relation defined in terms of individual elements. This is why one time-length can not become part of another. It is only analogy to call three days part of a week—analogy because the ordinal number three can, by virtue of the coexistence in ordinal series in general, be viewed as part of the number seven—no more than analogy, because time differs from the ordinal numbers in not permitting coexistence. The criterion, then, which enables us to assert that time possesses the properties of an intensity, is that it is made up of

⁶ 'Principles of Mathematics,' Vol. I., pp. 180, 181.

individuated elements, that no one, and no group, of them, can, after it has occurred, be used again to form part of another group, or, to put it most briefly, that it is a transitive fact. Either of these criteria—individuation or transitiveness—might serve as the criterion of intensity, but on account of its obviousness to inspection I prefer the latter.

The reason velocities are intensities is because their value depends on time-length. A body moving at a certain velocity does not contain slower velocities, because it is an event occurring at one individual moment, or group of them; if it is increased in the latter portion of its journey, that does not contain the earlier and lesser velocity because that actually can not be repeated, since the time can not be repeated—though another equal to it may be. One velocity to contain others would have to contain other time-factors than its own, which is, as we have seen, impossible. Five miles an hour does not contain (or, since velocity is inversely as the time, we had better say is not contained in) five miles in two hours, because the journey in the one hour is not a part of that in two hours; it is a distinct individual event, and indeed this is shown by the fact that it can not occur in the same body, but requires another individual body. That is, you can not have two different velocities at once in one body because they imply different time-values at once, which is impossible. Of course we can and do measure velocities just as we do times, but this is only correlation with ordinal numbers, with the added restriction of the whole-part relation. The criterion, then, which enables us to prove that velocities are intensive quantities is that they depend upon time—which means in the last analysis that they are transitive facts.

Our study of the nature of time enables us to infer that anything which is defined in terms of tendency to change, must possess the properties of intensity. Any factor in the physical world which sets up change must be viewed as the first term in a series; and the value of that factor is expressed by the number of changes which follow from it. But it is individually different from the series to which it gives rise; and the reason it is thus individuated is because it is essentially earlier in time. The initiation of the series can not be found over again later in the series; the cause can not be part of the effect, for it is individuated in time. Of course it may be measured by correlation with the ordinal numbers, and by Mr. Russell's convention (referred to above), but this does not obliterate the fact that the whole-part relation is intrinsically impossible.

Let us apply this to temperature. The temperature of a body tends always to decrease; everything cools off. Whenever there is a transfer of heat energy it is because of a difference in temperature

between two bodies; and the greater the difference the more energy is transferred (other factors being equal). Temperature differences are thus definable as initiations of a process of change; *i. e.*, transfer of heat energy. The higher temperature in one of the bodies in such a case as this, marks the first stage in the transfer; it does not contain existentially the lower one, just because they belong, in the scientific description of the phenomenon, later on in the series. Here, therefore, it is the transitiveness of the higher temperature, its character as initiator of change, that individuates it, and rules out the whole-part relation.

The other physical intensities all have the above property of setting up a series of changes, as Professor Helm⁷ has shown, followed by Professor Ostwald.⁸ So we seem to be justified in concluding that in the physical field whatever is transitive must possess the properties of intensity, if it has at the same time quantity.

We come now to psychical intensities. It is generally admitted that psychical states are essentially transitive, that this is perhaps their *differentia*. In the physical world we suppose the same conditions to recur: bodies are relatively permanent and distances and positions in space remain the same. But every moment of psychic life is a new entity, and a psychical state is a changing thing. Possibly in this change the same elements may recur in part, and possibly there is in some cases extensive quantity, where you have complex states with distinguishable component elements. But in the kind of psychical states to which the term intensive is applied, there is not complexity, either for immediate introspection or for definition. In a very loud tone-sensation lesser ones are not discernible; experience does not give us the parts spoken of in Mr. Stout's definition. And as Professor Münsterberg shows,⁹ it is unintelligible to speak of them, for they must be identical in nature, and it is absurd to speak of such an element being present many times all at once. A psychical intensity difference is a difference between simple facts. But if so, it is intensities that are *par excellence* transitive; because one can never recur a second time as part of another greater one. An intensity has the same property as an event in time—two of the former can not coexist unless they are differently localized, just as two events can not coexist in time unless they occur in different places. In other words, it is because different intensity values of the same quality are transitive with reference to each other—because one must go before another can come—that the whole-part relation is impossible.

⁷ 'Die Lehre von der Energie.'

⁸ 'Naturphilosophie,' Lect. XII.

⁹ 'Grundzüge der Psychologie,' Vol. I., Ch. 8, I.

The measurement of these intensities is similar to that of time. We can immediately perceive the difference in loudness of two tone-sensations a_0 and a_1 to be the same in amount as that between a_1 and a_2 . Then we may call the difference a_2a_0 twice that of a_2a_1 . This is done in Weber's law, when we call the just perceptible differences equal. Such measurement, however, does not imply the whole-part relation.

It appears, then, that the above intensive facts owe their intensity to their transitivity. But is this the only possible criterion of an intensive fact? Is it the only guarantee that where there is greater, less or equal, there will be no addition and consequently no whole-part relation? I think it is, and for the following reasons:

The commutative law (without which there is no addition or whole-part relation) seems able to hold only if the elements considered retain their individuality when brought into different permutations and combinations. Now we can postulate this of bodies and figures in space (though not always) and so here (usually) addition, wholes and parts are possible. The condition of no addition, etc., would then be, always, that the elements considered (some of them at least) do not retain their individuality when brought into various permutations and combinations. But this condition is equivalent to transitivity, which can belong only to temporal facts. Therefore the temporal character (and what is involved in it) alone can be the condition of intensity. Of course it does not follow that every fact which has to be defined in temporal terms is intensive. When, however, it has the property of being greater, less or equal, it must be intensive, and guarantees the presence of pure order without extensive quantity, in the world of our experience. As space or coexistence makes possible extensive quantity, so time or succession makes possible intensive quantity.

W. H. SHELDON.

COLUMBIA UNIVERSITY.

DISCUSSION

DR. PERRY'S REFERENCES TO WARD'S 'NATURALISM AND AGNOSTICISM'

IN his interesting article on 'Philosophical Procedure with Reference to Science,' published in No. 7 of this JOURNAL, Dr. R. B. Perry refers to Ward's 'Naturalism and Agnosticism' in terms that seem to indicate a serious misapprehension of the author's purpose. This misapprehension appears likewise to be shared by others: I have heard more than one person speak of the book with some

irritation as 'an attack on science.' Here are some of Dr. Perry's sentences: "Not satisfied with confuting the dogmatic positivist, and partly for the sake of confuting him, the author indulges in considerable riddling of the conceptions of science. The reader is encouraged to believe that with a little more dialectic, Professor Ward could overthrow the whole system of science. . . . But, in truth, philosophy presents a very sorry spectacle when she attacks the conceptions of science in a hostile spirit. Not only is it presumptuous for the amateur to show the specialist the error of his ways, but also humorous for the study whose barrenness is somewhat notorious, to challenge the legitimacy of her neighbor's numerous and very healthy progeny. It is thus that philosophy from time to time waxes so sublime as to be ridiculous." After referring in no very complimentary terms to Karl Pearson's 'Grammar of Science,' Dr. Perry concludes his paragraph as follows: "Ward and Pearson furnish convenient illustrations of reactionary tendencies in contemporary philosophy of science. It is a question of some logical nicety which position is most untenable, that of the philosopher who refutes science in detail, or that of the scientist who refutes philosophy in general" (pp. 170, 171).

Since Dr. Perry is himself a teacher of philosophy, we can not regard his contrast of the barrenness of that study with the fruitfulness of science as indicative of his real opinion regarding the value of philosophy, or indeed, as anything more than a piece of rhetorical pleasantry. But his remarks are positively misleading when he speaks of Ward as 'attacking the conceptions of science,' 'showing the scientist the error of his ways,' and 'refuting science in detail.' It should be abundantly clear from the preface to the first edition, as well as from numerous passages in the body of the work, that the author's quarrel is not with natural science as science, but with 'Naturalism,' *i. e.*, with the mechanical theory of the world when it is put forward as philosophy—as a final ontology. Here are a few sentences taken from that preface: "These lectures . . . only attempt to discuss in a popular way certain assumptions of modern science which have led to a widespread, but more or less tacit, rejection of idealistic views of the world. These assumptions are, of course, no part of the general body of the natural sciences, but rather prepossessions that after gradually taking shape in the minds of many absorbed in scientific studies, have entered into the current thought of our time. . . . If with the history of science and the results of the sciences before us we pass straight on to the construction of a philosophy, idealism has no chance. But in truth, 'modern science' hardly needs to construct its philosophy; for without any conscious labor on its part, the naturalistic view of the world

seems to stand out clearly of itself. . . . But is it verily positive fully-orbed reality that science sets before us? This is the question that leads us to examine the mechanical theory, the theory of evolution and the theory of psychical epiphenomena."

Statements like these can be found in abundance, and would seem to make sufficiently clear the author's own conception of his task. Of course, if it could be shown that he has not maintained this standpoint but has entered the lists against natural science on its own ground, Dr. Perry's strictures might still be justified. But Dr. Perry has made no attempt to show this, and I see no facts which could be cited to support the claim.

In the second edition of his work which was published last year, Professor Ward restates his position still more clearly, and also deals directly with criticisms of the same general nature as those offered by Dr. Perry. (Supplementary Note to Part I.) I shall quote a few sentences which will, I think, make further comment on my part unnecessary: "Naturalism is not science, and the mechanical theory that serves as its foundation is not science either. . . . Nevertheless, though Naturalism and the natural sciences, the Mechanical Theory of the Universe and mechanics as a science, are logically distinct, yet the two are at first sight very similar and historically are very closely connected. . . . In fact Naturalism, like Materialism, is only physics treated as metaphysics. . . . But many of them [modern physicists] consider that their science is attacked by those who seek to lay bare the latent metaphysics, the physical realism on which the Mechanical Theory of the Universe rests. The criticism of this theory in the preceding lectures has been so regarded. It has been described as 'an attempt to prove that the science of mechanics is no science at all'; and again as making the 'exactest of sciences impossible'; and finally as exhibiting 'a dislike, a contempt, a hatred, a loathing of everything connected with science'! In point of fact this criticism rests throughout on the expositions of a school of physicists . . . steadily increasing in number and influence, who reject entirely the almost mediæval realism imparted by Descartes to modern physics. . . . It surely verges on extravagance to suppose that men like Kirchhoff or Poincaré . . . are seeking 'to invalidate the methods of science,' or to prove that 'mechanics is no science at all.' . . . I should assuredly never have dreamt of daring to meddle with physics as a positive science, still less of attempting to invalidate its methods or belittle its splendid achievements. There is a striking passage in Mr. Bradley's 'Appearance and Reality,' which I have had throughout before my eyes: 'As a working point of view, directed and confined to the ascertainment

of some special branch of truth, phenomenalism is of course useful and indeed quite necessary. And the metaphysician who attacks it when following its own business is apt to fare badly.' But he continues in words that I have already quoted (p. 64 above), 'When Phenomenalism loses its head and becoming blatant, steps forward as a theory of first principles, then it is really not respectable. The best that can be said of its pretensions is that they are ridiculous.' This blunder I believe that physical realism has perpetrated so far as it has advanced or defended the mechanical theory of nature. And it was solely against these 'pretensions' and the realistic interpretation of physical conceptions on which they rest, that my strictures were aimed'' ('Naturalism and Agnosticism,' 2d ed., Vol. I., pp. 303-305).

J. E. CREIGHTON.

CORNELL UNIVERSITY.

FOURTH ANNUAL MEETING OF THE WESTERN PHILOSOPHICAL ASSOCIATION

THE fourth annual meeting of the Western Philosophical Association, held with the University of Missouri at Columbia, Mo., on April 1 and 2, was, in one or two essential particulars, the most satisfactory which the association has had. Pains had been taken to avoid overcrowding the program; not more than two papers were presented at any one session; and the result of this wise policy was seen in unusually general and adequate discussions of most—unfortunately, not all—of the topics presented. Since the only justification for the oral delivery of technical papers consists in the promotion of criticism and a comparison of notes between workers in the same field, good discussions are of the essence of a good meeting; and in this respect the sessions at Columbia were more successful than those of previous years. The social features of the gathering were also happily arranged, and, through the unstinted hospitality of the faculty of the University of Missouri, were highly enjoyable; they had the simplicity and informality that are best calculated to promote good-fellowship and a better acquaintance among the fellow-specialists for whom such meetings are held. Some seventeen members were in attendance, including representatives of seven universities and colleges.

One whole session was devoted to a general discussion of the philosophy of Herbert Spencer, opened by a comprehensive and penetrating criticism of Spencer's metaphysics by Professor E. L. Hinman, of the University of Nebraska, and an examination of Spencer's contribution to sociology by Professor C. A. Ellwood, of the Univer-

sity of Missouri. The list of the remaining six papers—which were equally divided, as to subject-matter, between psychology, ethics and the history of philosophy—has already appeared in this JOURNAL. Nearly all of the papers (which were for the most part too long and elaborate to permit of the compression necessary in such brief abstracts as could properly appear here) are eventually to be published in full in technical periodicals. The tendencies of opinion which came most conspicuously to light in the several papers and discussions were: A reaction against the analytical psychology in favor of the functional and genetic, a sense of dissatisfaction with the present state of ethical theory and with certain crystallized distinctions, antitheses and assumptions that prevail in the customary treatment of it, and a demand for a fresh and more adequate attack upon the problem of ethical methodology; and, in the field of the history of philosophy, a disposition to minimize not only the value but also the historic originality of some of the fundamental distinctions and arguments of Kant's epistemology.

At the business sessions, in the regretted absence of the president, Professor Patrick, the chair was taken by the secretary, Professor A. R. Hill, and by other members of the retiring executive committee. Resolutions were passed expressing the regret of the association at the removal of Professor Thilly, its first president, out of its section of the country, and its cordial good wishes for his future work in a new field. The question of a change of name and affiliation with the eastern society was laid upon the table, in the failure of the American Philosophical Association to take any definite action upon the matter at its last meeting. The proposal for a joint meeting with the eastern association at Philadelphia was apparently not regarded with favor, and the selection of time and place for the next meeting was left to the new executive committee. The following officers were elected for the ensuing year: President, Professor A. Ross Hill, dean of the Teachers' College of the University of Missouri; Vice-President, Professor E. L. Hinman, of the University of Nebraska; Secretary-Treasurer, Professor Arthur O. Lovejoy, of Washington University; members of the Executive Committee, Professor Frank Sharp, of the University of Wisconsin, and Dr. H. W. Stuart, of the University of Iowa. The following were elected to membership: Dr. Mary K. Benedict, Dr. George R. Dodson, Dr. W. B. Elkin, Professor F. C. French, Dr. R. M. Ogden, Professor E. J. Swift.

A. O. L.

REVIEWS AND ABSTRACTS OF LITERATURE

The Evolution of Theology in the Greek Philosophers: The Gifford Lectures in the University of Glasgow, 1900-1 and 1901-2. EDWARD CAIRD, LL.D., Master of Balliol College, Oxford. New York, The Macmillan Company, 1903. 2 vols.

Dr. Caird always writes in a masterly and interesting way. It is needless, therefore, to write a commendatory notice of his last volumes. Every one interested in theology and philosophy will know that he can not forego the pleasure and profit that these lectures afford. They deal with more technically philosophic subject-matter than his lectures on 'The Evolution of Religion,' and therefore afford more opportunity for the enforcement of absolute idealism, of which he is *facile princeps* expositor in England. In fact, that is his one subject, whatever subject-matter he takes up. His masterly work on Kant's philosophy might well be entitled 'Through Kant to Hegel.' His lectures on 'The Evolution of Religion' is an application of the same philosophy to the historical phenomena of religion. Greek philosophy gives him the genesis of absolute idealism. Here he is most thoroughly at home with his subject. Thus there comes to a reader of his works a sense of repetition. It would be ungracious to say that he is always saying the same thing over. It would have to be added that he always says the highest truth, and says it well. He is always saying and proving that the real is, through and through, the rational—that absolute self-consciousness is the only really real. He is glad to use the conception of evolution in his expositions. But one quickly finds that it is the philosophical rather than the scientific conception of evolution that he uses. It is the way of the spirit in thinking experience out of its *sub specie temporis* to the *sub specie æternitatis* point of view, rather than any evolution in the subject-matter itself. The evolution is not in the eternally real, but in our gradual, and, I may add, which he would not, in our asymptotical apprehension of the absolute. There is only one real experience. There are many faltering onward steps in man's knowing it as it is for God. The keyword he uses in tracing this evolution is that of *abstraction*. Everything seen *sub specie temporis* is seen away; because it is seen as partial, or as an *abstraction*. Only as experience is seen *sub specie æternitatis* is it seen aright, as a total, a *res completa*, or concretely. Degrees of reality come from degrees of knowing. *Sub specie æternitatis* there are no degrees of reality. Thought and being are identical. The real is the rational. God is all in all—the one total experience. Absolute idealism has the task of showing the logical process from the *sub specie temporis* to the *sub specie æternitatis* point of view. If this can not be done, then we have agnosticism or mysticism, not philosophy. Dr. Caird does not minimize the task. He rejects any '*facile monism*,' as he knows that at best it must be a *difficile* monism. Hence he emphasizes the natural dualism against which Greek philosophy waged such a strenuous, and not altogether winning, fight. That is what he finds in Greek philosophy

—in Plato and Aristotle—an unresolved dualism. One must question whether he does not overemphasize their dualism and minimize their monism. Or, accepting his interpretation, one must then ask whether he himself thinks clearly and cleanly and speculatively through to a monism, or whether he does not glide over the bridge of mysticism to the goal. Dr. Caird is strenuously opposed to pantheism. But one always feels, in reading his works, that this antagonism comes of his religious and moral training, and that his victory is rather ethical than speculative. Surely in these volumes where he treats of Neo-Platonism, he comes to do what Professor Royce does in his Gifford lectures. That is, he greatly enlarges the concept of thought, taking in the religious and ethical elements.

He concludes his fine chapter entitled, 'Does the primacy belong to reason or to will?' by saying, 'the general result to which our argument brings us is that neither the theoretical nor the practical life can be viewed as the exclusive source of that higher consciousness which is manifested in religion and philosophy' (II., 381). Either view, he asserts, is a false abstraction. That is, the purely speculative, logical, philosophical point of view is insufficient, leading, as it did with the Neo-Platonists, to an emptying of the consciousness of God of its peculiar meaning and content (II., 382).

And it is only thus that Dr. Caird, like Dr. Royce, is saved from going the abstractly speculative road to a negative absolute. The crux of the problem is to see the world of becoming, of evolution, the time and space world, as organic elements of the one true reality—to know God, not as a unity that transcends all finite, partial, abstract existences, but as a Being who realizes Himself in the whole process of nature and spirit (II., 312)—a unity that is eternally self-differentiating and yet maintaining itself in and through all its dualistic, polyistic forms. All absolute idealism must deny absolute reality to the world of scientific knowledge. Science is a grade of knowing that gives a grade of reality—but not the real reality. There are many abstractions, but only one concrete. All finite thought, including scientific knowledge, deals with abstractions. All philosophy is essentially theology, as Aristotle saw, because it is an explication of the one concrete experience. I confess to finding more speculative theology—less dualism—in Greek philosophy than Dr. Caird allows. And I also fail to find in later idealism any great advance upon the central speculative conceptions of Greek philosophy.

In his chapter on the final results of the Aristotelian philosophy, he finds a deadlock in Aristotle's conception of God as self-consciousness, as related to the world of genesis. The changing world of *processes* is regressively traced back to the unmoved mover. But there is no passage from this to the world of motion. He says, 'We may hide this from ourselves by speaking of self-mover with Plato, or an unmoved mover with Aristotle, or a *causa sui* with Spinoza; but this is only a disguise for the fact that we have made what Aristotle calls a *μετάβασις εἰς ἄλλο γένος*, a change to quite a different category or way of explanation.' This is a hard saying and one questions whether, if this be true, modern idealism does not commit the same fault.

As for Dr. Caird's masterly treatment of Plato and Aristotle and the Neo-Platonists, it goes without saying that no one can afford to miss his fine critical exposition of these masters of those who know. He treats fully of the development of the idealism of Plato, whom he calls 'the first systematic theologian,' who yet failed to attain a full reconciliation of the opposite lines of mysticism and dualism. He gives a chapter on Plato's doctrine of the immortality of the soul and idea of God. He shows how the severe critic of Plato, Aristotle, is a most faithful disciple, but holds that he is ultimately more dualistic than Plato himself. This is, at least, disputable.

His last chapter, on 'The Influence of Greek Philosophy upon Christian Theology,' will be read with deep interest. Profound as the influence was, Dr. Caird declines to see it to be a secularization of the Christian faith. Greek philosophy supplied the necessary form for the work of reflective thought upon the Christian consciousness that gave the Church its theology. But yet Dr. Caird thinks it brought the bane of dualism into Christian thought and deepened the gulf between the human and the divine. This seems like a far-fetched cause, when the cause is so near at hand—immanent in the Christian consciousness itself. In this chapter, too, one sees that Dr. Caird regards Neo-Platonism as the logical development of Greek philosophy. This at least will open the question for another estimate of philosophy and for a different reading of the development of Greek philosophy and Christian theology. It seems to me to vitiate the view of philosophy as a progressive way of the spirit of man to the spirit of God.

J. MACBRIDE STERRETT.

COLUMBIAN UNIVERSITY.

Rationality and Belief. A. K. ROGERS. *The Philosophical Review*, January, 1904, pp. 30-50.

This article attempts 'an adjustment of the relative claims of the logical and extra-logical factors in belief.' The discussion starts with a definition of reality as being 'at bottom a postulate of the will.' At the foundation of all belief lie our active needs. What satisfies our needs is real; if it can be used as a means for doing something that our nature impels us to do, we believe in it. All else remains in the form of mere floating images. But further, to give full objectivity to what we feel as real there must occur some clogging of the smooth functioning of things. This brings out the consciousness of the distinction between means and end, and thus the separation between self and the world arises. A further development from the same cause is the distinction between the objective thing and sensation. Finally social contrasts help to bring out the consciousness of our ends, and social agreements develop the distinction between the illusory and the real.

The practical inference from this postulate character of all reality is that spiritual values, which we also believe in on the basis of practical needs, have as much right as have our beliefs in the facts of physical life.

Now if reality is a postulate, then emotion, which is feeling directed

towards some object, can give us reality. And since the writer holds that emotional demands are more obviously the ground of conviction in respect to spiritual facts than are demands of the will, he seeks to defend emotion against the suspicion that it is a disturbing element in the search for truth. In the first place, taking the coarser emotions, which result when instinctive activities are checked, their very tumultuousness reveals how deep-seated and organic their corresponding instincts are and therefore tends to validate the satisfactions of those instincts. In the second place, taking the deeper and steadier emotions, which are not organic sensations, their pressure lifts human activity from the level of the habitual and automatic into full consciousness, and therefore their right to furnish us reality can not be challenged.

The logical factor in belief comes in because we can not, after all, believe what we desire to. Desires conflict, and the realities they give us would annihilate each other without the logical test of reality as umpire. The logical test is consistency. If reality is a postulate, then we can ultimately believe only in that which gives harmonious expression to our active needs as a whole. This consistency required for belief is in the ideally complete experience a practical consistency, but at any given time it would have to be intellectual consistency.

The writer's treatment of emotional postulates is suggestive, and the logical faculty seems to be satisfactorily dove-tailed into the doctrines of the primacy of the will. But the query arises whether the word reality has not been used in two senses. The reason why the writer says that 'reality is a postulate' is that it is the '*insistence*' of a need that lends reality to what would otherwise be a mere floating image. But he is not willing to say 'that the truth which an act accepts is really created by the act.' He speaks of 'the larger reality beyond us' and of the fact that our acts 'presuppose a certain determinate system of reality' which they do not make. In short, he can not surrender the representative theory of knowledge. But the present reviewer questions whether such reservations do not imply the use of logical grounds for belief in a way different from that set forth in the article, which would throw the problem of their adjustment to the extra-logical factors open again.

EUGENE W. LYMAN.

CARLETON COLLEGE.

The Participation of the Eye Movements in the Visual Perception of Motion. RAYMOND DODGE. *The Psychological Review*, January, 1904, pp. 1-14.

This paper is, for the most part, a theoretical discussion of visual perception of motion. The author lays aside introspective evidence as unreliable; he presents some new material, but his arguments are based largely upon the results of experiments reported in his earlier papers. In the experiments in which he perceived the perforations in a revolving disk stand still during the interval in which the eye was moved for a short distance in the direction of rotation, and in the last quarter of the swing of a pendulum where it was found that the eye in pursuing the

pendulum makes no corrective movements, there is persistent stimulation of the one portion of the retina throughout the eye movement. The kinesthetic data are present, but change in retinal stimulation is wanting; the result is that motion is not perceived, and there is the illusion of the object standing still.

A new observation, and one which he believes is conclusive, was made with the counterbalanced pendulum. If the eye pursue a point of light carried by the pendulum below the axis, that point will appear to rest an appreciable length of time at the end of each swing, while a point carried above the axis will appear to make an additional movement in what he terms a 'whiplash excursion.' The pursued point and the eye, in the last quarter of each swing, are moving at the same rate; the kinesthetic factors are not sufficient to produce the perception of motion in that point. The point at the other end of the pendulum is moving across the retina, and, in this case, retinal change produces the perception of motion.

His data are of the greatest interest and importance. The material gathered by those who held that the kinesthetic factors are the determining factors in visual perception of motion, can not be ignored. We are impressed with the fact that the process is a very complex one. The final solution of the problem will be had when some means of harmonizing the results obtained by the adherents of the opposing theories shall have been found.

CLOYD N. McALLISTER.

YALE UNIVERSITY.

JOURNALS AND NEW BOOKS

INTERNATIONAL JOURNAL OF ETHICS. January, 1904. Vol. XIV., No. 2. *The True Democratic Ideal* (pp. 137-150): W. JETHRO BROWN.—"The democratic ideal once stood for liberty or equality, it now stands for what may be described as brotherhood. . . . When belief as a whole has seemed to wither and life has become in many ways more materialized there has developed a new and very exalted social ideal. . . . Has democracy undertaken too great a task? Have we tried too early in the world's history to realize the political institution based on mutual forbearance and cooperation? . . . The future alone can decide. *Rationality and Finality in Ethics* (pp. 150-161): THOMAS C. HALL.—As long as the interests of the group are at variance with the interests of the individual the sense of oughtness is a necessity, but it tells us not *what is our duty*, but only that our duty *must* be done. We must guard carefully against letting our increasing insight into the relativity of ethical authorities and formulæ diminish our faith in the finality of duty itself. *The Toleration of Error* (pp. 161-171): E. RITCHIE.—The broad tolerance of the present day does not result from materialism or indifference to truth. All views are not equally adequate, but reality is infinite and so many-sided that I can well afford to let others remain in possession of their religious beliefs and regard them as true from their point of view, even when mine contradict them. We

should bear in mind the great lesson taught by Hegel in such matters. *Proverbial Morality* (pp. 172-179): ROBERT A. DUFF. - Popular maxims and sayings are negative rather than positive, particular rather than universal, prudent rather than generous, by no means consistent with one another. Their conservatism however is valuable and 'they achieve immortality because they are able to wed form and matter in a way which makes these appear inseparable.' *Crime in England* (pp. 180-184): SAMUEL J. BARROWS. - Recent increase of crime in England, shown in the latest statistics, is mostly in petty offences, and need not cause alarm as to social or moral decline. *The Cynics* (pp. 185-200): JOHN MACCUNN. - An interesting account of the strength and weakness of the cynical philosophers. Their special strength lay in their insistence on the self-sufficingness of the spirit and of spiritual things, their weakness in interpreting self-sufficingness negatively and egoistically rather than positively and socially. Yet there was much in Greek life to justify even the negative side of their doctrine; they are worthy of being treated more seriously than is usual in histories of philosophy. *The Individualism of Marcus Aurelius* (pp. 201-208): W. A. WATT. - "The great practical defect of the ethics of the 'Meditations,' is that . . . there is not sufficient appreciation of the fact that it is not through the retiral but through the advance of the soul that personality develops. Yet, by the stoical method peace and tranquility of the inner self can be gained; and in representing this aspect of the human soul Marcus's work has great value." *The Spring of Salvation* (pp. 209-219): H. B. ALEXANDER. - A young man's plea that beauty rather than either happiness or knowledge be taken as the ethical ideal. "Can a leaven of beauty permeate and make beautiful our world? Only time can show, but I believe it can. The crying need is for men . . . who shall be apostles of beauty, each a redeemer in his kingdom. . . . The spring of salvation is the beautiful." *Discussion* (pp. 220-229): Remarks on Professor Leuba's Criticisms: JAMES H. HYSLOP. Rejoinder to Professor Hyslop: JAMES H. LEUBA. *Book Reviews* (pp. 230-261): Robert A. Duff, *Spinoza's Political and Ethical Philosophy*: JAMES GIBSON. Alexander Bain, *Dissertations on Leading Philosophical Topics*: E. E. CONSTANCE JONES. Charles Carroll Everett, *The Psychological Elements of Religious Faith*: WILLIAM M. SALTER. Giovanni Cesca, *La Religione Morale dell' Umanita*: E. RITCHIE. Zino Zini, *Il Pentimento e la Morale Ascetica*: E. RITCHIE. Andrew Lang and J. J. Atkinson, *Social Origins and Primal Law*: W. D. MORRISON. Charles Booth, *Life and Labor of the People in London*: C. P. SANGER. R. B. Haldane, *The Pathway to Reality*: F. MELIAN STAWELL. Henry Maudsley, *Life in Mind and Conduct*: A. R. AINSWORTH. Horatio W. Dresser, *Man and the Divine Order*: JAMES H. HYSLOP.

April, 1904. Vol. XIV., No. 3. *The Problem of Teleology* (pp. 265-280): FELIX ADLER. - The object of the paper is 'to define the notion [of finality] in such a way as to satisfy the requirements of moral science and practice without affronting the causal conception of the physical scientist.' After effectively criticizing Paley, the Darwinians and Paul-

sen, the author states his own conclusions: (1) "An end may be defined as a term in a causal series, the existence of which, as end, depends not at all on its reference to the series of antecedents leading up to it, but on its 'cross-reference' to simultaneous corresponding terms in other causal series." (2) "The notion of end . . . exists in idea only and not in fact . . . and can not serve us in . . . explaining nature, but only in evaluating it." *The Ethics of Passive Resistance* (pp. 280-291): J. G. JAMES. — "There is no personal or individual right in a matter of political obligation, on the ground of morality, to stand against or to resist the collective will or conscience of the majority when once the proposals have passed from the legislative to the administrative stage. . . . 'Passive Resistance,' though having no support on ethical or on ethico-political lines, may yet possess such moral value as will always attach to movements that are carried out with moral seriousness and sense of moral responsibility." *The Development of a People* (pp. 292-311): W. E. BURGHARDT DUBOIS. — The apparent inferiority of the negro to-day is a natural result of nearly five hundred years of slavery. For "not only did slavery overthrow the negro family and teach few lessons of thrift and foresight; it also totally broke a nation from all its traditions of the past in every realm of life. The chief aid to the negro race is and must be given through its group leaders, the highly trained men who can inculcate by example and by social intercourse high ideals of life and a love for sane and sanitary methods of living. To the elementary and to the industrial schools, must be added the college and university for the adequate training of the group leaders." *Is Vivisection Justifiable?* (pp. 312-322): C. S. MYERS. — (1) Vivisection is not immoral, because, on the one hand, it does not cause much pain to the animals, and, on the other hand, even though it necessarily deprives the men who practice it of any sympathy for animal suffering, it does not therefore degrade or brutalize them. (2) It is of incalculable utility, as being the basis of all progress in bacteriology. (3) It increases our knowledge of truth. Therefore vivisection is justifiable. *Professor William James' Interpretation of Religious Experience* (pp. 322-339): JAMES H. LEUBA. — James is criticized for restricting his study of the religious consciousness to its abnormal types, and also for his general conclusion, which, in spite of several disclaimers, is to the effect that mystical states imply the action upon us of objective powers. Our knowledge of abnormal psychology enables us to explain the mystic state as due to purely subjective causes; and the quasi-polytheism which James would introduce is as unlovely and uninspiring as it is unscientific. *Wordsworth's Ideal of Early Education* (pp. 339-352): JOHN H. MUIRHEAD. — A sympathetic exposition of Wordsworth's protest against utilitarian ideals in early education, and his plea for a culture of the heart rather than the mere intellect. The simple, strong and tender sentiments natural to the child should be allowed to develop themselves quite spontaneously, through contact with nature and without interference or artificial stimulus of any kind. In the later years of childhood we should use 'fairy tales, romances, the best biographies and histories and such parts of natural history . . .

as belong to it, not as an art or science, but as a magazine of form and feeling.' *What should be the Attitude of Teachers of Philosophy Towards Religion?* (pp. 353-362): J. CLARK MURRAY.—The writer takes issue with Royce, holding that the judicial and critical attitude admitted to be proper to the philosopher would be helped rather than hindered by active membership in a church. *Byron Versus Spencer* (pp. 362-377): J. KINDON.—In this twofold appreciation, the writer's general conclusion (which is well supported by appropriate excerpts from the two poets) is that "Byron's power of abstraction, his earnestness of will rather than feeling, and his forcible diction, all fail to raise his subjects to the level of Spencer's; they are seen to be intellectual and individual rather than human compositions. Spencer's feeling is rich, grandly simple, varied, continuous; there is no apparent effort, no personal will put forth." *Book Reviews* (pp. 377-399): G. E. MOORE, *Principia Ethica*: J. S. MACKENZIE. E. L. GODKIN, *Unforeseen Tendencies of Democracy*: SYDNEY BALL. JOSEF REDLICH, *Local Government in England*: S. J. CHAPMAN. W. R. BENEDICT, *World Views and their Ethical Interpretations*: JOHN DEWEY. HENRY LAURIE, *Scottish Philosophy in its National Development*: JAMES LINDSAY. ROBERT ADAMSON, *The Development of Modern Philosophy*: J. E. McTAGGART. W. G. MILLER, *The Data of Jurisprudence*: W. F. TROTTER. B. L. HUTCHINS and A. HARRISON, *A History of Factory Legislation*: D. H. MACGREGOR. W. M. BOWACK, *Another View of Industrialism*: S. J. CHAPMAN.

REVUE PHILOSOPHIQUE. No. 4, April, 1904. *La Testament Philosophique de Renouvier* (pp. 337-358): L. DAURIAC.—A study of Renouvier's *Le Personnalisme suivi d'une étude sur la perception, etc.* This work contains a new monadism, with a cosmogony which is theological perhaps more than philosophical. Renouvier's doctrine of the creation, fall and restoration of man. *Science et Conscience: à propos d'un livre récent* (pp. 359-367): F. RAUH.—The work of M. Lévy-Bruhl is incomplete. Conscience is not a fact to be deduced, but a fact to be discovered empirically. We should study ideals and their types, and the conditions under which they arise. *La Science Positive de la Morale (suite et fin)* (pp. 368-392): G. CANTECOR.—Positivistic ethics seeks to exclude underlying *a priori* postulates, but they are necessary both to thought and action. Kant's position was in the main correct, though not fully worked out. The practical postulates do not give the details of ethics, but are none the less important and true. *Revue Critique: Les Principes Philosophiques de la Chimie Physique* (pp. 393-409): A. REY.—A summary and criticism of *Traité de Chimie Physique: Les Principes*, by J. Perrin. The work is an attempt to give precise definitions of fundamental scientific concepts such as force, action, energy, entropy, etc. It defends the reality of atoms, ether, etc. It is admirably done. *Analyses et Comptes Rendus*: G. GAILLARD, *De l'Étude des Phénomènes au Point de Vue de leur Problème Particulier*: L. ARRÉAT. G. DELAMARE, *Recherches Expérimentales sur l'Hérédité Morbide*: C. BLONDEL. MACRÈS, *Essai sur la Philosophie Mécanique*: A. REY. R. SCHWEITZER, *Die Energie und Entropie der Naturkräfte*: A. REY. J. HUNDHAUSEN, *Zur Atom-*

- bewegung: Kritik und Neues*: A. REY. C. Rădulescu-Motru, *Science et Energie*: N. VASCHIDE. A. Brachet, *Pathologie Mentale des Rois de France*: P. CHASLIN. J. Rogues de Fursac, *Manuel de Psychiatrie*: P. C. J. M. Bramwell, *Hypnotism, its History, Practice and Theory*: S. JANKELEVITCH. J. G. Hibben, *Hegel's Logic, an Essay in Interpretation*: L. WEBER. *Revue des Périodiques Étrangers. Correspondence. Livres Déposés.*
- Braunschwig, Marcel. *Le sentiment du beau et le sentiment poétique.* Paris: F. Alcan. 1904. 240 pp. 3.75 fr.
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- Egger, Victor. *La parole intérieure.* Paris: F. Alcan. 1904. vii + 326 pp.
- Erdmann, Benno. *Historische Untersuchungen über Kants Prolegomena.* Halle: M. Niemeyer. 1904. vii + 144 pp. 3.60 m.
- Eucken, Rudolf. *Geistige Strömungen der Gegenwart.* Leipzig: Veit & Comp. 1904. 8 m.
- Favre, Louis. *Notes sur l'histoire générale des sciences.* Paris: Schleicher, Freres et Cie. 1904. 131 pp. 2 fr.
- Güttler, C. *Wissen und Glauben.* München: C. H. Beck. 1904. vii + 210 pp. 3 m.
- Hinton, C. H. *The Fourth Dimension.* London: Sonnenschein & Co. 1904. 10 s. 6 d.
- Hollitscher, J. J. *Friedrich Nietzsche: Darstellung und Kritik.* Wien und Leipzig: W. Braumüller. 1904. 270 pp. 5 m.
- Ingram, J. K. *Practical Morals: a Treatise on Universal Education.* New York: The Macmillan Co. 1904. 8vo. 167 pp. \$1.40 net.
- Metschnikoff, Elias. *Studien über die Natur des Menschen.* Leipzig: Veit & Comp. 1904. 5 m.
- Silberstein, A. *Leibnizens Apriorismus im Verhältnis zu seiner Metaphysik.* Berlin: Mayer und Müller. 1904. 74 pp. 1.60 m.
- Spencer, Herbert. *Autobiography.* New York: D. Appleton & Co. 1904. 8vo. 2 vols. \$5.50 net.
- Stoll, Oswald. *The Grand Survival: a Theory of Immortality by Natural Law.* London: Simpkin, Marshall, Hamilton, Kent & Co. 1904. 202 pp. 3 s.
- Stoll, Otto. *Suggestion und Hypnotismus in der Völkerpsychologie.* Leipzig: Veit & Comp. 1904. 16 m.

NOTES AND NEWS

THE programme for the season of 1904 of the Glenmore Summer School of the Culture Sciences, founded in 1889 by Thomas Davidson, has been issued. The session will begin on July 11 and extend to September 3. Lectures are announced for Mondays, Tuesdays, Thursdays and Fridays at 11 a. m., and for Sundays at 11:30 a. m. There will be in-

formal discussions relative to the subjects of the lectures of each week on Wednesday evenings. The following lectures are announced: weeks beginning July 11 and 18, Charles W. Bakewell, Ph.D., of the University of California, on 'The Philosophy of Plato'; week beginning July 25, Leslie Willis Sprague, Lecturer for American University Extension Society, Philadelphia, on 'Ralph Waldo Emerson'; week beginning August 1, Charles G. Child, Ph.D., L.H.D., of the University of Pennsylvania, on 'The Making of English Literature'; week beginning August 8, Hon. Chester Holcombe, A.M., Ex-Minister to China, Lowell Institute Lecturer, 1902, on 'The Religion and Literature of China'; week beginning August 15, Felix Adler, Ph.D., of Columbia University, on 'The General Theory of Social Ethics,' and Edward G. Spaulding, Ph.D., of the College of the City of New York, on 'Dogmas in Philosophy and Science'; week beginning August 22, Alvin S. Johnson, Ph.D., of Columbia University, on 'Some Aspects of the Labor Question'; week beginning August 29, J. Mark Baldwin, Ph.D., LL.D., of Johns Hopkins University, on 'Social Psychology.' There is a possibility that a few additional lectures may be given during the summer by Professor W. T. Brewster, Ph.D., of Columbia University, and by Professor Lightner Witmer, Ph.D., of the University of Pennsylvania on Literature and Psychology respectively. For particulars of the session, Professor Stephen F. Weston, of Yellow Springs, Ohio, should be addressed.

At a meeting of the Trustees of Columbia University on May 2, a gift to establish a new professorship of philosophy was announced. The Trustees voted to appoint to the chair John Dewey, Ph.D., head professor of the department of philosophy in the University of Chicago since its foundation. Professor Dewey has accepted and will offer courses at Columbia beginning with the second semester of the academic year 1904-05.

PROFESSOR EDWARD BRADFORD TITCHENER completed on May 3, a course of four lectures at Columbia University, on 'The Psychology of the Affective Processes' and 'The Revival of Psychophysics.' On Monday evening, May 2, he met the Psychological Journal Club for a general discussion of his lectures.

PROFESSOR PAUL HANUS, who holds the chair of education at Harvard University, will be given leave of absence next year, and will spend the time making a study of foreign systems of school administration. Professor George Santayana, of the department of philosophy, will also spend the year abroad.

IN July Professor G. Stanley Hall and Professor J. Mark Baldwin are to lecture in the Summer School of the South at the University of Tennessee.

DR. G. DAWES HICKS has been appointed to the chair of moral philosophy in University College, London, made vacant by the resignation of Dr. James Sully.

It is announced that Professor James Ward, of Cambridge University, will lecture before the Summer School of the University of California, and will also be present at the Congress of Arts and Sciences in St. Louis.

THE JOURNAL OF PHILOSOPHY

PSYCHOLOGY AND SCIENTIFIC METHODS

FUNDAMENTAL CONCEPTS AND METHODOLOGY OF DYNAMIC REALISM

THE recent illuminating discussions of functional psychology make it opportune to indicate some of the metaphysical counterparts of this method as embodied in that form of monism which is most appropriately termed dynamic realism. It would consume too much of the time courteously extended to me by the editor for this purpose to indicate how generally (albeit not always consciously) this tendency in philosophy has permeated recent literature, but none can deny a notable advance in this direction during the last ten years.

The extension of the term 'functional' into philosophy may be deprecated as bringing an assumption into a sphere whose chief glory it is to avoid all postulates which have not been critically examined. 'Dynamic,' as descriptive of a form of realism, seems more happy in that it agrees with the psychological idea that conscious processes are always a 'doing' but does not drag in, even by a form of popular allusion, the thought of something behind which is 'functioning.' It may be the claim of realism to escape as long as possible from preinterpretations, whether of science or of philosophy.

Accordingly, it erases from its vocabulary such words as 'matter,' 'force,' 'cause' and 'effect'; the former pair as unwarrantable philosophical postulates masquerading as scientific facts, and the latter pair as scientific generalizations transported non-critically into the citadel of philosophy, where, breaking from their wooden horse, they traitorously betray their too hospitable host. Since science herself is pretty generally admitting the necessity of a reinterpretation of the matter idea, we need do no more than baldly state the dynamic position that matter is a revelation of energy in complex equilibrated form, and that the attribute of materiality is a name for certain relations, or correlations, of psychic modes, and so is a creation of judgment in the same sense that *substance* is. There is found neither philosophical justification nor scientific advantage in

postulating a matter behind these phenomenal centers to serve, as it were, as a precipitant for energy or a vehicle for its expression—a thing whose properties, by which it alone can be conceived to exist, are simply expressions of something else, viz., energy; which, however, can not exist without this unknowable. The logical hocus pocus involved deserves to be scourged out of philosophy as well as out of science.

But perhaps all that can here be attempted is to indicate some of the limitations which the dynamic method finds it necessary to impose.

METHODOLOGICAL APHORISMS OF DYNAMIC REALISM

I. It demands the closest adherence to the direct data of experience. As a point of departure, all realism endeavors to imitate common sense, though it must avoid the naïve errors of popular conceptions. It is open to us either to select as units of a system the logical elements produced by the most abstract reflection, or to take the postulates of physical sciences, but either process leaves a haunting sense of insecurity by reason of the fact, which all must recognize, that the determinants of idealism, on one hand, and the units of science, on the other, are of secondary origin, while the units really given are presented as immediate experiences. Whatever validity the elements of either materialism or idealism may have rests upon processes or assumptions based on these experiences and the truth or falsity of relations supposed to be found between them.

Realism stands between these extremes, so far as its material is concerned, but back of both by virtue of its method, which is genetic and fundamental. It begins the inquiry with the question which logically precedes all others—the inquiry as to the genesis of reality. It is idle to seek for the validity of the real till its source and nature are known.

II. Do not introduce, as a cause for an unexplained phenomenon, an element itself unexplained or depend on analogies which cross from one sphere to another and unallied one.

This aphorism is violated by materialism when it postulates an inexplicable matter back of phenomena as an explanation of their relation or coherences. If it be a fact that sound-waves will not be transmitted through a vacuum, air is stated to be the *medium* of sound. Light, however, *does* pass through a vacuum and consequently there must be some more refined kind of air in the vacuum to account for the transmission of the light. Along such lines and by such reasoning we reach a conclusion that all forms of energy require a medium for their transmission, the medium being other than energy, although necessary to its expression. The

curious series of logical fallacies concealed here it is unnecessary to discuss in detail. Energy-not-acting is a nonsense concept. If energy be limited in its expression by something not energy, we have two antagonistic things, yet mutually necessary to each other, and a dual universe, *i. e.*, energy, which can not exist without matter, and matter only revealed by energy.

The energetic conception, which considers creation but a self-limitation of spontaneous energy, does not go out of its own category for the ground of *mode*. It does not require an explanation that light may pass through unfilled space but, if it be proved, as it some day doubtless will be, that something must exist in space in order that light may pass through it *as light*, the something will be identified in terms of energy, just as the action of air, etc., on the original energy of sound, forming the determinant of its special mode, is so identified in last analysis.

III. Definitions of terms must be sufficiently close to prevent the introduction of ambiguity by the application of the same term to diverse elements in the same discussion.

To the violation of this maxim, though it be simply the statement of a self-evident truth, most of our philosophical disagreements may be attributed. It is not alone the difficulty (which must be admitted to be inherent in the conditions and unavoidable) that different schools use the same word in different senses, but the fundamental incongruity of using the same word uncritically in one and the same discussion, which is here alluded to. It may be that Wolff taught philosophy to speak German, but certainly we await with impatience the genius who shall induct the heavenly muse into the mysteries of the English tongue.

For the purposes of the present discussion the closer definition of a small group of terms may be attempted, in the hope that, even if others do not care to employ the same restrictions, at least what is meant in the present connection may be ascertainable. The laxity in the use of such words as 'real,' 'true,' 'actual' and 'valid' makes it all but impossible to follow recent epistemological discussions.

Our usage shall be as uniformly as possible as follows: Wherever a general term is required for the idea of agreement with the requirements of thought, of whatever kind, we use '*valid*' or '*validity*.' A question of the criterion or sphere of validity is not implied. '*Reality*' refers to that species of validity whose ground is immediate experience and which, by virtue of its implication of a participation of the subject, is inscrutable and undeniable. It is a form of validity that can be neither challenged nor explained. To challenge it is to deny self—the ground of all knowledge, to explain, is to suppose a thinker behind the thinking or set over

against his thought, and this leads to an endless series devoid of significance.

Truth is the validity predicated of relations discovered between modes of experience. It implies but does not create reality and a relation may be true but not real. True relations become '*actual*' by their participation in the real. The statement that the sun was shining yesterday and will shine to-morrow, is true, but the other sentence, the sun is now shining, implies a present experience of reality. The judgment may be erroneous—it may not be the sun which is shining—but real experience is present.

Validity, in its widest sense, is the expression of faith that God is not mocked, but that there is a teleological universe or organism. This is prerequisite to all thinking.

If we speak of the validity of reality this can not be a question of reality itself as a direct fiat of our being, but simply a seeking for theoretical justification of the primacy which we *must* accord to it. This justification is, as already hinted, solely the law of congruousness—a faith in the unity and organic nexus of all things. The element of validity, when applied to the complicated processes of thought, consists in the recognition of relations. The statement 'That is a dog,' may prove to be founded on false relations or an incomplete assemblage of elements in a group. Whatever reality the presentation had is something apart from this identification upon which truth of the concept depends. If it be an *actual* dog, these elements of reality must be present.

Other contrasted terms requiring definition in this connection are 'existence' and 'manifestation.' Existence brings into the realm of validity the idea of continuance. We can not avoid the belief that the permanence which our judgment creates from frequent repetition of identical experiences resides in temporal extension of attributes as well as their coherence in an object. On the other hand, 'manifestation' implies an observer and is existence from the standpoint of the percipient. Dynamically considered, existence is a doing, and, in a universe of energetic limitation, the doing of any particular thing implies an influencing of that universe—a reaction with other energetic modes. Viewed from one point of view we might say that a thing would exist independently of the percipient, but in a world endowed (even partially and potentially) with sentient receptivity such activity will be potentially perceived. We may ignore the thought of the reaction while considering action, but this does not deny the reaction. As reacting it is potentially perceived—it has put forth what manifests it. This is then the relation of *essence* and *attribute*. Pure (unrelated) being when expressed as a definite essence owes this limitation to reaction. Attribute, or this

expression, is therefore potentially real. Its reality consists in the reaction. In the sentient world or world of realities, it is affirmed when it comes to be. To say that the essence exists prior to its attribute is to confound essence with pure being—to use an abstraction for a reality. Reality never awakens till the subject affirms the attribute. To deny that there is essence not realized is not necessary. But to claim that there is an essence not real in this sense is to limit the sphere of subjectivity unwarrantably. We must at least believe that all essence has its attributes affirmed by God. Or to put the same idea in another way, its 'becoming' is also a becoming intelligible.

To the naïve mind the analysis of being into essence and attribute seems unnecessary. There are many reasons for respecting naïve impressions. The history of grammar might lead to a suspicion as to the validity of distinctions based on the separation of verbs and subjects which belong together.

Analytically we discover that our distinction amounts merely to a separation of the subjective and objective in the consideration of a subject of consciousness. If there be an affirmation of the attribute, either the attribute affirms itself or the affirmation is made by the percipient. Obviously it must be the latter, or, if it were conceived as though the attribute affirmed itself, this would be equivalent to saying that its doing is its essence, for all attribute is necessarily active. (Should any one be inclined to doubt the last statement, let him reflect that even such attributes as unchangeability or inertness are only conceivable as contrasted to a world of change or a world of action, and, as activities are relative to the objects compared, it would be optional with us to say that the world is inert and unchanging and these changes inhere in our object. In fact, we know, physically speaking, that resistance and stability imply as much energy and reaction as any other attributes.)

But the affirmation is subjective and being becomes, like reality in general, the harmony of the subjective and objective.¹ But does

¹ Professor Dewey somewhere says: "The copula gives the statement of being, asserts the reality, and should not be treated as a mere representation of an act of mental predication. If it is merely subjective it contradicts itself. The judgment implies the existence of an object, and if being is simply in the mind of the person forming the judgment, the judgment is a contradiction."

The first part or premise of this summary is precisely equivalent to our 'reality is affirmation of attribute' and, if the logic is good in both cases, the result should be the same. But we rest our case on the statement that the affirmation is subjective and the attribute objective, while others say, No; the affirming (asserting) is objective, and there is appeal to common sense as well as to science to support the statement. We make bold to suggest that neither science nor common sense has made this ruling.

not the mind require us to conceive of a reality underneath the attributes in which they inhere? It is a question difficult to answer in this form. We can not trace our mental activities far enough back to ascertain by introspection what would take place in our consciousness if a single manifestation of reality should occur alone with no historical setting to build it out. It is not possible to say that the mental act of perceiving the light, or pain, or organic subsensation, which constitutes our affirmation of that fact, would be accompanied by an appreciation, even in the vaguest form, of an essence of which the sensation should be the attribute. In fact, all that we can gather, by the indirections permitted us, is in the direction of evidence that facts of somatic experience affect consciousness in infancy without our recognizing them as attributes of any essence. Yes, we *feel* them, but we do not *know* them. True, when we begin to know, the separation of essence and attribute is effected, but essence is not 'essence' simply, but a something else which we call 'substance.' The idea of substance is other and more than that of essence, which latter is a metaphysical creation that, as such, is not an element of our knowledge.

Substance is not only that which 'stands under' and forms a foundation for attributes, but is that which subsists from moment to moment in our apprehension of these attributes. Substance is a product of the integrating faculty of the mind. When the same experience repeats itself, either alone or in constant relation to others, these repetitions are, by this apperceptive power, piled one upon the other, their individuality is lost, and the uniformity and identity give rise to the judgment of a substance continuing and underlying the repeated similar or identical experiences. The

But, first of all, as to reality. Whose reality? It must surely be the reality of the realizer, not, as Dewey seems to imply, a reality of the on-looker or philosopher. Real implies the act of *realizing*, if we are to remain true to a dynamic position. So also subjective and objective are relative terms here. Subjective to whom? Why, of course, to the realizer. Now if we make any distinction between essence and attribute (which common sense does not, so that it need not be appealed to here) the affirming is done by *me*, it is subjective if anything is. What actually happens might better be represented by 'Lo, light.' If the question of reality arises, the change is to 'Light is.' 'Yea, verily light.' The light sensation has coupled itself to *me*. 'I affirm (there is) light.' To which of these terms does the distinction of objectivity come to attach? To the affirming? Certainly not, but to light.

But at this point logic is prone to outrun experience and to attempt to confound simple apprehension with judgment of substance. It also confuses what is *true* with what is *real*. The predicates of truth and reality are not discriminated in common parlance but must be in philosophy. Truth is predicated of relationships while reality does not exist apart from the experience of it. My experience is real or non-existent, my judgments are true or false.

greater the number of experiences and the greater the range of their variety that can be brought into constant relations, the greater the security we have in our concept of substance. An object that we can see and feel and hear and smell and taste in such relations of constancy as suggest organic connection between these various sensations, produces in us a sense of substantiality that is more impregnable than that which results from a fleeting glimpse. Yet a rainbow is presented to sense in as substantial a way as the distant mountain on which it seems to rest, and the sense of substantiality is undermined only by the final discovery that the perceived relations are false. The appearance is real but the predicate of substantiality is erroneously placed. The substance exists, but is not where and what we supposed.

It may be objected that substance is framed to connote certain uniformities in experience and thus is a result of the impossibility of keeping separate impressions which are exactly alike in a mechanism like the brain. Well, what of it? Our mental furnishing is formed of uniformities variously classified, and the classification depends on the classifying organ and not the external relations only. The judgment of substance is formed so early and takes such hold on our mental life that we may claim that it is innate, or rather that the necessity for it is structurally innate, and that whatever value such classification may have to life will be propagated through natural selection.

There is then a reality back of the attribute—not exactly, but back of the uniformity in attributes psychology gives us substance, and it remains for philosophy to postulate essence if she can prove a necessity for it.

We hold this distinction to be most important, viz., that the material out of which the mind forms its objective units is not properties or activities, as such, but coincidences, uniformities, repetitions and the like. A process of identification and correlative differentiation is necessary to all of the classificatory work of the intellect. All changes reflected upon our minds become properties or attributes of some substance as soon as we observe or infer a uniformity in their repetition, relation, etc. We might even speculate upon the reason for the outward projection of this new validity—a reality of identification, or truth.

Lotze's definition of being (essence) as the 'standing in relations' involves part of the idea expressed above but it is somewhat awkwardly put. If the thing is defined by the relations in which it stands, these relations can only be perceived of its attributes. These attributes must be activities. Relation implies change, as it could not be predicated of actual homogeneity. Relation implies ex-

perience of change, yet it is uniformity in the midst of change that produces the judgment of substance. Again, to stand in relation has no significance unless the relation be perceived. Standing in relation is no different from standing out of relation till the relation is perceived. Thus we are driven to our first conclusion that in reality we have attribute and the affirmation of it by the perceiving. The latter, or essence, is subjective and the reality is the union of subjective and objective.

But for all practical purposes, we may be satisfied with the result of analysis. We know that an experience is real and are indifferent whether philosophy recognizes the criterion of validity or not.

C. L. HERRICK.

SOCORRO, NEW MEXICO.

HERBERT SPENCER AS A PHILOSOPHER¹

IT is probably too soon to speak with confidence of Mr. Spencer's services to philosophy. The enthusiasm which greeted his philosophy more than a generation ago has waned under the growing conviction of looseness and inconsequence, and the result is that in recent years his genuine service to philosophy—and to science—has not been adequately recognized. What I shall say of him is that he introduced into science and philosophy a method which has resulted in a greater advance of thought than any since the beginning of modern science, but that his own use of this method was often superficial, and that his type of mind was in many respects distinctly unphilosophical.

He was unphilosophical in the sense that he was uncritical. His cast of mind was that of a blind empiricist. He was one of those who hold that knowledge is to be found simply by opening your eyes, that disagreement and error must be due either to negligence in observation or to blind prejudice. He sets out with the assertion of a fixed world-order. This world-order is not merely *postulated* as a necessity of thought—as a condition which must be realized in fact if we are to have knowledge—but is asserted as a positive and realized fact—as something not to be worked out and proven, but simply to be recognized. And Mr. Spencer betrays the *naïveté* of his assumption in his impatience with those who are slow to recognize—who fail to see the plain fact of universal causation. If he had examined his position he must have asked—as Kant had asked long before—whether this recognition of universal causation was not in

¹ Read at a meeting of the Texas Academy of Science, held in memory of Mr. Spencer, at the University of Texas, March 24, 1904.

itself of the nature of a prejudice. And if he had critically sifted his facts he must have seen that merely by themselves they presented no clear order, and that the order found in them was obtained by a process of selection, which, in a complexity of detail unmanageable as a whole, had emphasized the small part that could be actually ordered, and had ignored the rest, merely trusting that these too could be reduced to the same order. This ordering process had long before been pointed out and, in his derivation of the conception of cause, Mr. Spencer was, I believe, the first to offer a theory of its genesis. But his theory of the genesis of the causal order presupposed that the causal order was first a fact. Indeed, though the derivative character of other evolved conceptions led him to a criticism of their validity, it was never so in the case of causation. He remains throughout within the point of view which regards the causal order as a plain fact—as something not to be interpreted or proven, but merely to be recognized.

Mr. Spencer's type of mind was one that admitted of nothing but definite certainties. Though no one has done more than he to establish the view that all distinctions in the world are relative and all differences gradual, yet in practice his facts were all absolute. Everything real was perfectly clear, and anything not perfectly clear was wholly unreal and deserved no consideration whatever. There was with him no broad boundary of doubt, as with most of us, between the real and the unreal—or, rather, I should say, no series of imperceptible gradations between clearest reality and absolute negation. His real world was like that of the ancient geographers; there was a definite end to it, and when the end was reached there was a sudden fall into nothingness. No feature of his philosophy illustrates this better than his unknowable. To many readers the unknowable is a generous concession to the possibility that what is not known clearly may still be known to a degree and apprehended as real, and many theologians have sought to discover in the unknowable a possibility of sympathy with their own views. But from Mr. Spencer's practice it must be evident that the unknowable is a matter of logical courtesy and nothing more. After fixing the limits of the knowable with a precision that implies a good deal of information about the unknowable, the latter does not again enter seriously into his system of philosophy. His statements about the knowable are as positive and final as if there were no unknowable waiting to give them a new interpretation.

I have intimated that Mr. Spencer's hard facts were in reality the reflection of a personal point of view. Now this point of view, so far from being philosophical, was nothing more than the point of view of the plain man. Mr. Spencer was a plain man of the hard-

headed type—one who, indeed, was beyond the range of popular superstition, but who, on the other hand, accepted the laws of natural science with unquestioning reverence. This does not mean, of course, that a philosopher should not accept these laws, but merely that, as a philosopher, he should accept them as hypotheses, with a regard to their possible modification in a more general view of things. For Mr. Spencer, however, they were final and absolute verities. In his appeal from the reasonings of metaphysicians to the facts of science he was evidently unconscious of the metaphysics implied in the definition and demonstration of the facts; he forgot how often the laws of science had been reconstructed upon a modified basis, and he overlooked the probability, amounting almost to certainty, that what is now systematic and clear will in its turn be recognized as inconsistent and obscure and call again for redefinition. In fact, it is a curious paradox that Mr. Spencer's evolutionary philosophy made no provision for the further evolution of scientific conceptions or for the evolution of his own thought. Throughout a long life spent in the elaboration of a system of philosophy he retained unaltered the principles and even the prejudices with which he began. His native desire for and belief in individual independence suffered no modification through his later conception of society as a social organism. So also the physical conceptions accepted in his earlier works were greatly modified by physicists during his lifetime, and the modification was due partly, though indirectly, to the influence of his own writings. But in his own thought they were never modified. The point of view of the evolutionary works simply overlaid that of the 'Social Statics,' and the result is an evolutionary philosophy in which evolution is logically a mere appearance, in which the final realities—matter and force—remain just what they were from the beginning.

It is this standpoint of the plain man which accounts for the attention universally given to his philosophy and for the popular admiration of its simplicity and clearness. For even Mr. Spencer's opponents have been accustomed to admit that, in marked contrast to all other philosophies, his was at any rate simple and clear. In reality, however, there is no writer who illustrates so well how illusory clearness may be and how often it depends upon an unconscious similarity in the standpoints of writer and reader. Mr. Spencer was clear for those who shared with him the point of view of the plain man, and to whom no questions were suggested for which he did not provide. The moment we go outside of his point of view and attempt to consider his theories in relation to those of others, to determine just where he stands and just how he answers the main question at issue, we find ourselves in confusion; he is commonly, without sus-

pecting it, on all sides at once. We may then be able to see that there is a really organic and consistent view underlying his several statements, but to state it as his real view we shall have to modify many of his statements and to reject others as not properly expressing his meaning. This, at least, has been my own experience; and to those who wish to make a test of his clearness I recommend his views of heredity, of the association of ideas, and of the relations of egoism and altruism.

The outcome of Mr. Spencer's way of thinking is a system of philosophy which has the appearance of being carefully constructed upon a solid scientific foundation, but which is in reality full of superficial reasoning. This superficiality consists largely in the uncritical use of scientific metaphor. I say 'scientific' metaphor because Mr. Spencer, instead of taking his figures from common life, took them from physical science. He then proceeded to apply them by analogy to a wide range of phenomena without taking into account the difference between the phenomena thus defined and the original figure. The final result is an argument which is often hardly superior in quality to that of Henry Drummond's 'Natural Law in the Spiritual World.' To choose a glaring but not unrepresentative illustration, take his chapter in the 'First Principles' on 'The Rhythm of Motion.' Here Mr. Spencer undertakes to show that the law of rhythm is true not only of the vibrations of a string or of a tuning-fork, but of every change in the universe, including the changes of the weather, the appearance and extinction of animal species, the rise and fall of nations, and the fluctuations of mood and attention in the individual. Until we ask what is meant by rhythm this is all deeply significant. But upon asking this question our attention is called to the fact that by 'rhythm' we mean not only recurrent alternation of action and reaction, but periodic alternation—that is to say, action and reaction which repeats itself in equal intervals of time. But Mr. Spencer, after his first few instances, ignores the necessity of periodicity. He can not pretend to show that the alternations observable in our mental conditions, in society or (leaving out the annual changes) even in the weather, are periodically recurrent. What is the result? Either, we must say, his general law of rhythm is false or it is meaningless. It is false if he adheres strictly to the periodic nature of rhythm. It is meaningless if this is to be regarded as not essential. For, that there must be action and reaction—a departure from equilibrium, now in one direction, now in another—in a world where there is a plurality of moving bodies, or where action is not perfectly adjusted to ends, is so obvious as to be a truism. It would be remarkable if it were otherwise. If these alternations were periodic the fact of their occurrence would

be significant; in the absence of periodicity they are not worth mentioning.

I have allowed myself this criticism of Spencer because it seems to me that the severest criticism can not obscure the fact that he was a man of real genius and rendered invaluable services both to science and to philosophy. The question remains, then, regarding the nature of these services. He was not the first to conceive of biological evolution, for Lamarck and others were before him and Darwin is his contemporary;² nor was he the first to propose an evolutionary philosophy, for this had been done by Hegel; and for that matter, the conception of evolution may be found in the earliest Greek poetry. Mr. Spencer's real services to thought may, I think, be brought under the following heads:

In the first place, though he was not the originator of the conception of evolution, he was the first to make it a universal and effective working-hypothesis. Darwin had applied the conception only to animal life. The Hegelian evolution was the evolution of the idea—a logical order of derivation rather than the real order. The Hegelian meant, to be sure, that the logical order was in fact the real order, but his language and ideas were so far from those of common life, and indeed the concrete significance of his conceptions was so imperfectly appreciated by himself, that it is only in the light of Mr. Spencer's work that we call the Hegelian philosophy a philosophy of evolution. What Mr. Spencer did was not merely to convert a biological conception into an hypothesis for science in general, nor yet merely to *propose* it as a general working-hypothesis, but, by taking upon himself the labor of applying the conception to fact and detail, to show that it was clearly workable. Upon the results of his work it is unnecessary to enlarge. To the introduction of the evolutionary conception we owe not only a wide extension of practically every science, but the opening to systematic investigation of many fields which hitherto had been capable only of somewhat unordered description.

In the second place, through Mr. Spencer's work we have arrived at a more truly cosmic philosophy. By this I mean that we have been brought more clearly to the conviction that the world is a unitary system, and that every fact in the world derives its character and meaning from its place in the system as a whole. This was, of course, not a new conception. That all the different features of the world must be in some sense interdependent has been recognized

²For Mr. Spencer's place in the development of evolutionary theory see the preface to the fourth edition of the 'First Principles'; also Huxley's chapter "On the Reception of the 'Origin of Species,'" contributed to Darwin's 'Life and Letters.'

from earliest times, with more or less clearness, as the postulate of all philosophy. Mr. Spencer's service consisted—here again—in working out the conception in terms of fact and detail, and in making it a practical rule of thought. To give two instances: it is to him that we chiefly owe the acceptance of a universal interdependence of mind and brain as a working-hypothesis for psychology; and he was the first, I believe, to insist upon a physical and biological interpretation of human conduct. These were, indeed, the consequences of the conception of animal evolution. While human beings were regarded as a unique animal species, sharply differentiated from the beasts by the fact of moral sense and reason, there was no ground for treating human thought and action in the light of more general laws. It was Mr. Spencer by whom, in these regions, the consequences of evolution were enforced; so that it is now an all but universally accepted principle that there is nothing in the higher stages of evolution which is not in some form present in the lower, and nothing in the lower which does not in some form persist in the higher. The introduction of this principle into philosophical studies has made them not only more coherently and comprehensively philosophical, but at the same time more definite and concrete. The older moralist, for example, in his search for the end of human conduct, was limited to the facts of human life, and the range of possible interpretations was indefinitely large. When now he assumes that the same principle of action which governs human life must also be applied to that of the lower animals, the field of discussion is immensely narrowed and the problem is much more clearly defined. The same is true of the psychologist. Professor James has made an analysis of emotion which so far surpasses all others as to be the first really concrete description. But this analysis would never have been suggested except for the hypothesis that in human life we have only a later development of the impulses which govern the lower animals.

WARNER FITE.

UNIVERSITY OF TEXAS.

DISCUSSION

TWO RECENT VIEWS OF THE PROBLEM OF REALISM

IN the fifth number of this JOURNAL Doctor Hartley Burr Alexander published an article entitled 'The Concept of Consciousness,' in which, if I understand him correctly, he attempted to disprove the ordinary psychophysical view of consciousness, so far as its relevancy for metaphysics is concerned, and to suggest in its

place a doctrine which might be called naïve or positivistic realism. Doctor Alexander's argument is interesting in itself, and is still more interesting when considered in relation to the theory of Professor C. A. Strong as set forth in his recent book 'Why the Mind has a Body.' For while Professor Strong tries to establish idealism on a psychophysical basis, Doctor Alexander would build up a realistic doctrine on a non-psychophysical basis. There is thus a double contrast between the two views. To limit the scope of immediate or direct perception to the states of the psychophysical organism seems to Doctor Alexander absurd, and to Professor Strong axiomatic. And again, to regard the sensible qualities and physical objects which we directly experience as constituent elements of reality seems to Doctor Alexander quite natural and necessary, while for Professor Strong, on the other hand, those same objects and qualities are viewed as the hopelessly phenomenal states of a set of transcendent (*i. e.*, unperceivable), though quasi-conscious, things-in-themselves.

The dual antithesis of these views is complete and instructive, but in itself it concerns us only as an incident. The main purpose of this paper is to point out the similarity of the two conceptions. I wish to show that the naïve realism of Doctor Alexander and the psychological idealism of Professor Strong both follow from a single false disjunctive judgment, an imperfect dilemma which they both accept as true, though each selects an opposite horn. This supposed dilemma is as follows: *The qualitative contents of our direct or immediate consciousness are either exclusively outside or exclusively inside the psychophysical organism.*

Let us begin by considering the arguments offered by Doctor Alexander in support of the first or realistic alternative. That writer says:¹ "Useful as the psychologist's position may be as a *modus operandi* in his own science, it can only result in irrationality when carried over into metaphysics. . . . We can have immediate experience only of sensations, he says; they furnish all that we know really and at first hand; the apparatus of sense is the proof, . . . *ergo* we can know nothing but conscious states and everything must be consciousness. The amazing thing about this argument is that anyone could fail to see that it is based upon the tacit assumption of knowledge of that very extra-conscious world the possible existence of which it is so strenuous to deny." In short, an idealism which is based upon physiology is self-contradictory. We could not infer the physical unless we experienced the physical, hence if there

¹THE JOURNAL OF PHILOSOPHY, PSYCHOLOGY AND SCIENTIFIC METHODS, March 3, 1904, p. 119.

is a physical world it must be formed out of the stuff which we directly perceive. This is the positive part of Doctor Alexander's thesis, and it seems to us that he has proved it most satisfactorily.

With the second part of his thesis Doctor Alexander is by no means so successful. Not content with proving the objective reality of experienced *qualities*, he proceeds to attack the psychophysical conception of consciousness and to prove that the *particular things* which we experience are not events within the organism. "The common-sense view of consciousness is distinctively from the third person's standpoint. . . . We learn in our physiologies that the brain is the 'seat' of consciousness, and taking this figure to mean that the mind is somehow enclosed within the brain, we accept the solution as sufficient to our need . . . it never occurs to us to question the premise that consciousness is confined within the skull. . . . The view of consciousness current in the physiologies is not very different from that of common sense. . . . Useful as the psychologist's position may be as a *modus operandi* in his own science, it can only result in irrationality when carried over into metaphysics" (pp. 118-119). This view which Doctor Alexander thus describes and condemns as the third person's standpoint, he contrasts with the unreflective feeling of all of us, that in perception we are directly grasping extra-organic objects which are distant from us in time and space. And he accepts this latter naïve and telepathic view of perception first because it is acceptable to naïve consciousness, and second because it is free from the difficulties of subjective idealism and of parallelism, which he conceives as the only alternatives. With regard to the second of these reasons, I hope to show, after considering Professor Strong's view, that Doctor Alexander is wrong in supposing that his telepathic theory of perception is the only alternative to psychological idealism. While, as regards the former of the two arguments, I would call attention to three sets of considerations, anyone of which would justify sufficiently the psychophysical theory of perception against the testimony of naïve consciousness invoked by Doctor Alexander.

First, then, I mention the *a priori* argument against any object affecting directly any thing except what is contiguous to it. If a thing is real it is somewhere. If I am real I am somewhere; to be real I must have a position or place in *rerum natura*. How can I conceive a thing that is at a distance from me making itself known to me, causing in me a perception of it, without projecting itself through the intervening space in the form of an effect upon my organism? If I do not perceive the effects of the fixed stars upon my organism, if I perceive the real stars themselves, remaining all the while here upon the earth, I and they must interact at a dis-

tance, *i. e.*, must be in two places at once which seems to me impossible.

Secondly, if I would escape the contradiction involved in discontinuous influence, or action at a distance, and yet maintain that I perceive objects themselves and not the projections of them on my organism, I must hold that in sight for example, my visual organism is actually as large as my field of view, that when I see a star my consciousness actually rushes out through my eyes and encircles the trillion mile distance that separates me from the star. This is, I suppose, the naïve or unreflective view of the perception of distant objects, that they remain where they are but yet are immediately present to our organs of sight which are thought of as two enormous but impalpable antennae extending far beyond our tactile members. Now this view, aside from its absurdity, can be easily shown to be false because of the element of *time* that is always involved in our perception of objects outside us in space. The astronomer may give us excellent reasons for believing that the star, which we thought we directly perceived, had perished several years previous to the time when we were looking at it. Every stimulus that we know of takes time to affect us, hence if we would justify the naïve belief in the direct perception of happenings at a distance, we must extend our telepathic power to time as well as space. And this would I should suppose be regarded by everybody as frankly impossible.

But thirdly, all the facts of *illusion* constitute in and by themselves an independent refutation of the telepathic view of Doctor Alexander. For an illusion is a case in which there is produced in the organism by some internal cause an effect of the same sort as is usually produced by an external cause. The object perceived is the same in the true and in the illusive perception. The extra-organic circumstance is different hence it follows that it can only be the projection of an event on the organism that is the object of a direct perception.

That naïve consciousness should normally neglect the personal equation is as natural as that a man should forget that he is wearing glasses. As long as the glass remains undimmed, and does not distort our view, we do right to neglect it. As long as the psychophysical mechanism works efficiently, we rightly and inevitably take no account of it, and it is only when something unusual, such as an illusion, makes it go wrong that we are rudely reminded that in sense perception we have to do not with external objects but with the shadows which they cast upon our organism. Doctor Alexander does to be sure make casual reference to some of these things, but seems to feel that for some reason we are at liberty to relegate them

all to the 'special science of the psychologist' and construct a 'metaphysics' of perception on a grandly independent basis. He reminds us that "it has long been plain that the tack followed along the line of the physiological argument results in a sorry course and a loss of wind for all the types of thought involved" (p. 120). We must, however, remember that the invalidity of that part of Doctor Alexander's thesis which deals with perception does not in any way affect this demonstration of the extra-organic *reality* of those qualities which we *perceive* only when they are within the organism.

Now turning from the extreme realism of Doctor Alexander to the psychophysical idealism of Professor Strong, we find that while the first part of his book is a fine vindication of the physiological method of approaching metaphysical problems, yet his second thesis, asserting the exclusively subjective and phenomenal nature of sensible qualities and the correspondingly transcendent and mysterious nature of the real things is by no means so convincing. The chief reasons given by Professor Strong for rejecting the reality of sensible qualities seem to be: I., that the primary qualities can not be conceived apart from the secondary qualities, and that the secondary qualities are intrinsically subjective in their nature and not merely in their exemplification (p. 177); II., that it would be duplicating worlds *præter necessitatem* to believe that the sensible qualities were exemplified both within and without the mind (p. 178); III., that we can not imagine ourselves completely away from objects without their vanishing in our grasp (p. 183).

We may begin with the last argument which appears to us the weakest of the three. It is true that whenever I think of anything, there exists along with the thing thought of my present act of thinking about it, but this either has no significance at all, for the reason that I can perceive my act of thinking to be extrinsically and, therefore, unessentially associated with its object and something to which I can pay more or less attention without the object changing at all, or else it means that I here and now can think of nothing at all as having reality or meaning of any kind that is not a part of my own consciousness at this present moment. Not only the physical world but Socrates, my great grandparents, my own past and future existence, are all nothing but aspects of my present psychosis. No one, and certainly no believer in things-in-themselves, could accept the extreme solipsism which this argument would mean, if it meant anything.

The second argument, which asserts that it would be multiplying essences needlessly to suppose that the external world resembled its intra-organic projection or shadow, flies so directly in the face of all analogies of experience that the realist always feels dumb-

founded when he finds it recurring. If there is one thing more obvious than another in the experienced world, it is the depiction or imitation of one thing by another. The effect to be sure is by no means invariably similar to its cause, yet on every hand we find cases in which there is resemblance, and do we then say that forms are being multiplied beyond necessity? Because I see sky and stars reflected in a mountain lake must I hold that the real sky and stars which cause that reflection are totally unlike the reflection, on pain of multiplying essences *præter necessitatem*? Is a photograph necessarily unlike the original lineaments that are its cause? Whether *præter necessitatem* or not, it is the very nature of qualities to *exist in multiply*. Every object projects upon every other object its form or image in as many ways as there are modes of energy, and the projected effect, while it is never perfectly like the cause, is also never totally unlike it. Surely we need not suppose that there is any peculiar distortion of perspective in the case of organisms. It seems to be the main business of an organism to correspond in its sensory affections with the environing objects which cause them. Indeed the differences of the animate and inanimate are largely due to the infinitely greater depictive power of the former. For whereas the dead thing reflects only the present moment (the past producing only a general resultant effect), the live thing on the other hand carries in its present state the *detail* of its own past history and to some degree that of its ancestors, its place in the scale of development being correlated precisely with the degree to which its depicted past is effective in modifying its reactions to present stimuli. Does not this increased *extent* of depictive power in living things carry with it a presumption of increase rather than decrease in the *accuracy* of depiction?

The argument that remains to be considered is stronger than either of the others. If the primary qualities can not be conceived without the secondary qualities and if the secondary necessarily imply a conscious spectator, then indeed there would seem no refuge from idealism. I would answer (1) that the inability to imagine is confused with the inability to conceive. I can conceive of the fourth dimension and of a sixth sense, and might even believe in the existence of those things, just as a man blind from birth conceives of and believes in a world of colors, without being in the least able to imagine them. Hence I can conceive of a temporal and tridimensional order of relations the intrinsic nature or 'secondary qualities' of whose terms remain quite unknown. But (2) it is, after all, by no means certain that the secondary qualities can not be imagined as objective. The exclusively subjective nature of these contents has been accepted as a self-evident dogma for so long that

it never occurs to us to inquire into the very slender basis on which that dogma rests. The era of modern as distinct from medieval thought began with the realization that natural objects were determined *ab extra* to a greater extent than by their own natures. The spatio-temporal relations of a material body govern its behavior, and a knowledge of external, mechanical or quantitative relations gives us the modern or predictive science as opposed to the merely classificatory science of the middle ages, which was always based upon a study of the intrinsic or qualitative rather than the extrinsic or quantitative aspect of things. Now, the secondary qualities are only indirectly correlated with the finite or perceptible spatio-temporal relations and hence they are for predictive or mechanical science of no direct value. For that reason they have been thrown bodily over into the realm of the subjective, and regarded as having their *esse* in their *percipi*. The uselessness of the secondary qualities for purposes of prediction combined with the fact that they are more regularly and markedly associated with feelings of pleasure and pain and hence are somewhat less easy to disentangle from our admittedly subjective processes, than are the primary qualities, is the sole ground (and a very inadequate ground it is) for our modern dogma that the objective world, in so far as it is objective, must be denuded of all colors, sound, odors, etc., and regarded (materialistically), as a mere ghostly nexus of spatio-temporal relations, or else (panpsychically) as a world of transcendent minds for the existence of which there is no shadow of normal or analogical evidence, and for a proof of which we are obliged to appeal to a 'pre-rational instinct.' Restore the ancient right of the secondary qualities to exist apart from the peculiar structure which we call a psychosis or a consciousness, and we take away the main support of idealism either in its Berkeleyan or in its panpsychistic form. For though Professor Strong may be right in assuming that the primary qualities could not merely of themselves subsist apart from some perceiver, yet when reinforced by the secondary qualities they can and do constitute an intelligible world of physical objects which neither precludes nor requires the presence of conscious spectators.

I can not feel that either naïve realism or psychological idealism would win their numerous adherents, were it not for the secret conviction of each school that its own position is the only refuge from the position of its rival. The naïve realist, for example, would never be tempted to fly in the face of commonplace psychological and physiological truths, and maintain a telepathic theory of perception, were he not oppressed with the fear that if a perceived object were once exemplified within the organism, it could not be exemplified

outside as well. Nor would the psychological idealist have any adequate motive to degrade the objective world to the status of a parasite of the percipient ego were he not oppressed with the fear that if he admitted the independent reality of objects in space he would have to ascribe to himself a telepathic power of perception.

These groundless fears are largely due to the distorted form in which, from the time of Descartes, the dualistic theory of knowledge has been presented. The intra-mental and the extra-mental objects are not different in kind as the Cartesians supposed, but rather as Aristotle and the scholastics maintained, they differ only in position and in relational context. Objects of perception—even the so-called ‘particulars’—are always qualities or combinations of qualities, forms, *universals*. As universals they are capable of multiple exemplification—capable of existing in two places at once. We can never perceive a quality except it be exemplified in our psychophysical organism, for we are not telepathic; but this does not prevent us from perceiving directly the intimate stuff of objective reality itself; because a content such as red or green is exemplified in us, and so seen by us, it does not follow that its nature is made by us, that it is dependent upon us as an *exclusively* subjective thing. Perceptual knowledge is certainly objective when regarded *formaliter*, it is certainly subjective when regarded *materialiter*. The naïve realist recognising the formal transcendency of perception, thinks it necessary to make perception also materially transcendent. In disregard of the facts of psychology, he would make each particular mind as large as its field of reference. The psychological idealist, on the other hand, knowing that knowledge is materially limited to what appears within the organism would make it equally limited in its formal scope. In disregard of the needs of logic, he would restrict the extent of objective reality to the spheres of individual minds.

Between these views it is difficult to choose, though in favor of each it may be said that it is capable of refuting the other. Both arguments rest on a false dilemma. Forgetting the important Platonic and Aristotelian truth that any object of cognition is primarily and essentially a universal, and is as such capable of simultaneously existing both within and without the mind, they assume that a perceived object must exist *either* in one realm *or* in another—that if it is externally real (as Doctor Alexander rightly asserts), it is *thereby* prevented from being presented within the psychophysical organism (which he wrongly infers); or that if, as directly perceived, it exists within the psychophysical organism (as Professor Strong rightly asserts), it is *thereby* prevented from being real (which he wrongly infers).

W. P. MONTAGUE.

REVIEWS AND ABSTRACTS OF LITERATURE

Transitional Eras in Thought. With Special Reference to the Present Age. A. C. ARMSTRONG, Ph.D., Professor of Philosophy, Wesleyan University. New York, The Macmillan Company, 1904. Pp. xi + 347. Price, \$2.00.

This book discusses the so-called transitional eras in thought, eras like the Sophistic movement among the Greeks, the Renaissance, the eighteenth-century *Aufklärung*. It attempts to discover the characteristic marks of these periods and also to point out their fundamental differences, and shows that our own age resembles these epochs in many respects. Such eras of transition are, according to our author, times of tearing down and clearing away, times of digging about the foundations of belief and action, eras of scepticism and agnostic thought. They are not periods of growth so much as periods of the decay on which growth is consequent, and therefore betray many symptoms of decadence.

One of the earliest characteristics of such times is the breaking up of philosophical systems, and this decline of philosophy is a condition of the coming of the change in all. The movement likewise involves religion and theology as well as the principles of morals. The weakening of the regulative principles produced by the confusion in reflective thought, and the enfeeblement of conscience and the moral will, bring about revolutionary changes and disasters. The causes of the disease must be looked for in the region of the ethical as well as in the sphere of the intellectual development, and thought and action must cooperate to effect a cure.

The phenomena involved in transition periods are very complex, and it is not to be supposed that any one element in the total process is exclusively cause and effect. Moreover, the forces at work are not to be found in thought alone, but in the intimate alliance of thought and life.

Every era of transition must pass away. The earliest indication of its decline is the appearance of dissatisfaction with the results of unbelief in theory and in practice. The work of reconstruction often begins with the heart. Men turn to the feelings and the conscience, they recoil from the philosophy of reason to the philosophy of faith or the philosophy of feeling, of instinct, of the heart. This faith philosophy accomplishes a useful work by bringing into prominence the inherent presumptions in favor of spiritual principles.

The specific differences between the various eras of transition are also noted by the author. The development of national culture, the extent of scientific attainment, the stage of political organization, the progress of social development, the character and purity of ethical conceptions, the nature and the intensity of religious convictions—these factors in thought join with temperament and environment and history to make Sophism different from the post-Aristotelian scepticism, to distinguish the Renaissance and Reformation from the eighteenth century, etc. Our own age, for example, is certain of one thing, physical

science. It is hesitant or sceptical about most things else. It is often conscious, however, of the deeper moods of the human spirit, therefore profoundly dissatisfied with the results of its own labors. Connected with this mood of spiritual discontent is the ingrained moral seriousness of the thinking of the time. This ethical spirit of recent scepticism lifts it to a nobler level than the majority of the transitional eras.

Professor Armstrong also shows how natural science, which has been counted chief among the destructive forces of our age, has come to contribute to the cause of positive truth. Though science is not without its infirmities it is the most nearly certain knowledge we possess. Science exerts a reflex influence upon thought, which is to be reckoned among its principal achievements. In the broader sense science is a real philosophy. Its method is based upon thought processes and its results lead on to principiant conclusions. Never before has mankind been in possession of so large and important a body of accepted conclusions. Science has rendered a great service in saving our age from utter moral despair. We may also say that science has helped to strengthen the foundations of morals and religion. Thus science itself has produced evidence in proof of the integral and essential position of religion in individual life and human society. Moreover, science supplies new motives for belief in God, *e. g.*, in postulating some sort of unitary ground of the world which is conceived as an active Being. The theory of biological evolution is instinct with teleological implications of its own, and it is possible in our day to defend the existence of an intelligent framer of nature.

A tendency towards historical inquiry also marks periods of intellectual unrest. The present age exhibits such tendencies, but these can not be completely explained as the result of despondency alone. The methods of historical research have been perfected in our time, and are used as an instrument of explanation, being completed in the genetic method of explanation. And the thought has been evolved that there is a universal law in history, that connections exist among the events, that there is continuity among the phases of history and the world at large. The historical spirit of our age, therefore, differs from that of other eras of transition. The prominence of biological science, particularly Darwinian researches, in the intellectual movement of the age has favored the adoption of the historical point of view. This has led to an enlargement of the field. The field of science seeks to trace out the evolution of the entire phenomenal universe from star dust up to mind and social life. It must be remembered, however, that the historico-genetic movement has not been dependent on biological thinking alone. Moreover, the complete identification of biological evolution with cosmical evolution, and the tendency to count the former the sole cause of the transition to the historical way of looking at the world, are exaggerations. Yet the historical type of reflection is no mere passing phase of thought, but a notable addition to the intellectual possessions of the race.

Still another mark of transitional eras is the effect of the new thought on political and social movements. The last century and a half has been

characterized by a remarkable development of civil liberty, the establishment of equality among the citizens of the enfranchised nations, and the consequent demand of the lower classes for relief from want or a larger share of the rewards of labor. The thinking of the time is concentrated on social questions, and the study of social problems gives prominence to organic rather than the atomistic conception of society. The social sciences have influenced psychology and ethics, both theoretical and practical. It is recognized that man has duties to the social organism of which he is a part, and to other groups or classes of men. There is also a widespread conviction that the socialistic functions of the state should be increased. Religion too is being socialized; all sects agree that it is a paramount obligation to promote the things which make for general good.

Another feature of transitional eras is the appeal to faith which is also not unknown in our own age. Faith bases its conclusions on practical rather than theoretical grounds, and it deals with principles which are incapable of demonstration. That the esthetic, the ethical, and the religious consciousness are normal and integral elements in human nature, and that thus their deliverances are evidential—principles of this kind form the real kernel of the faith philosophy. The evidence of faith may not, however, according to our author, be pleaded in behalf of principles whose character is purely theoretical, nor may it be cited in contravention of conclusions which are based on proofs of demonstrative force. Knowledge in the complete sense faith can not be. Nevertheless its testimony is of moment.

In a concluding chapter Professor Armstrong points out that eras of transition must pass away and that characteristic phenomena foretell their closing. Neither conservative reaction nor the method of doubt or denial, however, is fitted to lead thought on to a new constructive age. Such eras can be brought to a close by a process of synthetic development alone. The author mentions three typical forms of the constructive movement: the extension of formulas or expansion of principles, the process of central adjustment, and transition by displacement or substitution. Developmental synthesis must satisfy the demand for conclusions in accord with the results of advancing knowledge, and it must meet the need for principles fitted to serve as the foundation and the vehicle of a vigorous life.

Professor Armstrong's book is an able, suggestive and interesting piece of work that will be helpful to the student and teacher of philosophy in many ways. The historian of philosophy is constantly struck with the similarity between the different negative periods of thought, and ready to see in our own age many characteristic features of decline. One is tempted to accept the general conclusions of Professor Armstrong because they seem so easy to draw, and they are probably correct. It is necessary, however, in my opinion, to make a somewhat closer first-hand study of many of the periods in question before we can dogmatically assert the truth of all the positions advanced. I am not quite sure, for example, that the Sophistic movement was as thorough in its sceptical

temper and in its destructive results as Professor Armstrong conceives it to have been. The Sophists certainly did repudiate the old metaphysics and doubt the possibility of metaphysics, but they seemed to be impelled by a strong desire to study facts; how else shall we explain the eagerness with which they investigated problems ranging all the way from the government of a state to the art of cooking? Gomperz in his 'Griechische Denker' gives us a picture of the period called Sophistic which does not quite fit the description of it as thoroughly sceptical, and makes one feel just a little doubtful of the traditional conceptions of that age. We are also apt to forget, in contrasting different eras of this kind, that, after all, all periods are more or less transitional, that they are all more or less progressive, that the spirit of reflection and criticism is never absolutely stifled. This thought is brought home to closer students of mediæval philosophy. We are so apt to believe that the Middle Ages were scholastic through and through, and that the spirit of criticism and opposition suddenly broke forth, whereas we can hear the mutterings of dissent almost from the very beginning. Think of the philosophical, theological and political heresies, think of the pantheists, the mystics, the nominalists, the sceptics, the thinkers interested in the study of nature, of the early Middle Ages, and you will see that the Renaissance and Reformation did not suddenly drop down from the skies. Of course, it must be confessed that the elements of opposition were embryonic at first, and that they had to struggle for the mastery, but they were there none the less. It must also be noted that the eighteenth century is not essentially an expression of the spirit that denies, but dogmatic, rationalistic, optimistic and cocksure. The Leibnizo-Wolffian philosophy, the common-sense thinkers, the 'Populärphilosophie,' with their cocksure proofs of the existence of God, and their dogmatic metaphysics, do not seem to me to fit in very well with an age of negation and decay, and yet they belong to the eighteenth century as well as the materialists, who, by the way, are equally cocksure.

But whatever doubts one may have with respect to certain theories advanced in Professor Armstrong's book, one can not help but regard it as a thoughtful and stimulating contribution to philosophy.

FRANK THILLY

UNIVERSITY OF MISSOURI.

The Finite in Spinoza. E. RITCHIE. *Philosophical Review*, January, 1904, pp. 16-29.

Hegel claims that Spinoza's system is an 'Acosmism' as it maintains the exclusive reality of God so strenuously as to relegate the phenomenal world to the illusory and unreal. Of course Spinoza asserts the entire dependence of the mode and its relativity to substance, hence the reality of things of experience can only be retained by regarding them as independent of substance. But if substance or God is equivalent to existence, by the very dogma of the relativity of mode is asserted the reality of the individual and of the world made up of individuals. A fuller account of the relation between the particular and the universal

in existence is to be found in some rather obscure elements in Spinoza's system of thought. His use of the scholastic expressions 'natura naturans' and 'natura naturata' shows that he accepts no duality between the real and the phenomenal, for to make these two natures numerically distinct would be to upset his fundamental dogma that God, nature, the 'ens absolute infinitum' is one. To conceive of God as inactive is impossible, it might seem then that we must regard 'natura naturata' as a merely illusory and deceptive presentation of reality—giving us an *apparently* passive universe, which does not in fact exist. But nature, taken as the totality of manifestations and as the effect of which God ('natura naturans') is the cause, is not something apart from God, something undivine, unreal; it is the same being presented as the *resultant* of its own force. The results are real, not illusory; an activity without real results would itself be non-real. The same fact is regarded in new connections, just as 'force' and 'matter' are not separable 'things,' but two ways of envisaging the physical universe. In the earliest formulation of Spinoza's philosophy we have the distinct assertion of things produced immediately by God as identical with infinite modes. In the 'Tractatus de intellectus emendatione' are these same 'creatures immediately produced by God' under the names 'fixed and eternal things,' 'physical things' or 'real entities,' yet these are not the innumerable mutable things, since the last only give us what are external or unessential properties. The language as to these 'singular things' which are yet 'like universals to us' is obscure. There is no correlation here with the Platonic ideas; Spinoza undoubtedly has in view the double manifestation of reality as existence moving in space and the same existence conditioned by mental activity. Epistemologically we must know physical things, objects moving in space, before we know them as reflections in consciousness. A schematic tabulation of Spinoza's exposition of God's being in relation to the physical world shows that the physical universe as a whole, 'facies totius universi,' is the totality of matter as subject to the laws of motion. It is, *as a whole*, permanent and infinite, but is made up of an infinite number of finite and mutable facts. Doctor Ritchie concludes that the dualism which differentiates between an Absolute, as an intrinsic and independent reality, and a phenomenal world of manifold appearance having no intrinsic reality is wholly foreign and adverse to Spinoza's ontology.

I. WOODBRIDGE RILEY.

UNIVERSITY OF NEW BRUNSWICK.

JOURNALS AND NEW BOOKS

THE PHILOSOPHICAL REVIEW. May, 1904. Vol. XIII., No. 3. *On Mechanical Explanation* (pp. 265-283): E. H. SINGER, JR. — A science should be classified according to its 'dimensions.' The dimensions of mechanics are mass, length and time. Any science whose dimensions can be reduced to these or functions of these (*e. g.*, me-

chanical theory of heat which reduces temperature to velocity of mass-motion) is a mechanical science. In biology where, if anywhere, mechanical explanation would seem to fail, the weight of opinion regards non-mechanical explanation as either temporary or in the nature of an economic device. *Purpose as Logical Category* (pp. 284-297): J. E. CREIGHTON.—Pragmatism or the instrumental theory of knowledge misapprehends the position of the objective theory. The latter does not any more than pragmatism itself hold to a reality beyond all experience. The objective reality postulated by knowledge is none the less objective because it is immanently present in experience. Moreover, it is very doubtful if thought can be regarded even from the biological point of view as having its sole function in the satisfaction of practical needs of the organism. "A series of individual purposes, as a description of objective reality is surely open to all the theoretical objections that have been so often urged against a series of subjective feelings." *The Meaning of the Psychical from the Point of View of the Functional Psychology* (pp. 298-319): H. HEATH BAWDEN.—The psychical and the physical forms of experience differ functionally. Unimpeded process is physical; process under tension is psychical; "Consciousness is to be correlated with nothing less than a complete organic circuit involving the whole context of external nature as truly as the internal mechanism of the nervous system." Both Royce and the panpsychists are criticised for their respective methods of distinguishing physical and psychical. The paper is of very unusual interest. *What is Æsthetics?* (pp. 320-327): G. SANTAYANA.—"Whether æsthetics is a part of psychology or a separate discipline is an insoluble question because it creates a dilemma which does not exist in the facts. A part of psychology deals with æsthetic matters but can not exhaust them; parts of other sciences also deal with the same. *Discussions: Evolutionary Method in Ethical Research* (pp. 328-337): THEODORE T. LAGUNA.—A comprehensive criticism of Professor Dewey's two essays on Evolutionary Method and Morality, and a defense of the method of empiricism from Professor Dewey's attacks. *Reply to Professor Bakewell: C. A. Strong. A Rejoinder* (pp. 337-346): C. M. BAKEWELL.—The discussion is mainly concerning Mr. Strong's view of the relation of the ego to its experience, to other egos, and to the brain. Mr. Strong defends and explains his theory; Mr. Bakewell renews his objections, though in a modified form. *Reviews of Books*: Lester F. Ward, *Pure Sociology*: J. H. TUFTS. G. E. MOORE, *Principia Ethica*: E. B. MCGILVARY. M. KRONENBERG, *Kant Sein Leben und seine Lehre*: A. E. TAYLOR. Summaries of Articles. Notices of New Books. Notes.

THE BRITISH JOURNAL OF PSYCHOLOGY. January, 1904. Vol. I., Part 1. *Editorial*, J. W. and W. H. R. R. *On the Definition of Psychology* (pp. 3-25): J. WARD.—The psychology of Aristotle, of Descartes, and of 'immediate experience.' Analytic psychology must precede genetic. *On Binocular Flicker and the Correlation of Activity of 'Corresponding' Retinal Points* (pp. 26-60): C. S. SHERRINGTON.—Symmetrical and asymmetrical flicker. The rule of relation of binocular

brightness to component uniocular brightnesses. The binocular sensation is attained by the combination of right and left uniocular sensations elaborated independently. *A Sixteenth Century Psychologist*, Bernardino Telesio (pp. 60-77): J. L. MCINTYRE. — An empiricistic psychology, the singular completeness and consistency of which accounts for its wide influence on Italian philosophy. *The Sensations excited by a Single Momentary Stimulation of the Eye* (pp. 78-113): W. McDUGALL. — The primary response is a series of pulses of sensations, diminishing in intensity. The 'recurrent image' is merely the last of such a series of which the intermediate members have been inhibited. More intense sensations are developed more rapidly. *Note on Fechner's 'paradoxical experiment'*: W. McDUGALL. *Proceedings of the Psychological Society*.

REVUE DE PHILOSOPHIE. April, 1904. Pp. 384-518. *La Théorie Physique: son Objet et sa Structure* (pp. 387-402): P. DUHEM. — The object of physical science is said to be (1) *explanation* of a group of laws experimentally established or (2) resuming and classifying them without explanation. To explain is to see the real behind the appearance; this real varies according to one's metaphysics and therefore explanation is unsatisfactory (*à suivre*). *Sur le Materialisme Scientifique, II.* (pp. 403-425): P. VIGNON. — Materialism advocates chance, not purpose, in organisms. Experimental evidence, morphological and psychological facts show that this doctrine is not sufficient to account for the phenomena of descent (*à suivre*). *Rôle due Hasard dans les Inventions et Découvertes* (pp. 426-439): F. MENTRÉ. — Examination of scientific discoveries ascribed to chance shows chance to mean 'synchronic conjunction of diverging series' (Cournot). It is relative to purpose, not pure or absolute, and yet objective, not subjective. *Revue Critique de Morale* (pp. 440-467): J. CARTIER. — Shall ethics be made scientific by becoming a 'social physics' or an affair of pure reason, or a subjective matter? The first can not define the absolute good, but can aid us to improve human life. But it does not exclude, as M. Lévy-Bruhl would claim, the subjective study of morals (*à suivre*). *À propos du Problème Morale* (pp. 468-469): L. BAILLE. — The conflict between the philosophy of action and the scholastic philosophy has been emphasized; Thomism, however, reduces this conflict to a minimum. *Analyses et Comptes Rendus*: H. Lagrèsille, *Le Fonctionnisme Universelle*, D. L. G. *L'Année Philosophique*, L. J. Frappa, *Les Expressions de la Physionomie Humaine*, H. GUYOT. Ch. Rappoport, *La Philosophie de l'Histoire*, T. DE VISAN. V. Brants, *La Petite Industrie Contemporaine*, HUBERT-VALLEROUX. *La Coopération*, G. F. T. Darel, *Le Peuple Roi*, V. BIÉTRIX. Rauh, *L'Expérience Morale*, C. BESSE. F. Brunetière, *Cinq Lettres sur Ernest Renan*, V. BIÉTRIX. Periodiques. Bulletin de l'Enseignement Philosophique. Chronique. Nécrologie.

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NOTES AND NEWS

THE editors of the *Psychological Review* announce that Professor Charles H. Judd, of Yale University, is to be hereafter associated with the *Review*. He will be editor of the series of *Monograph Supplements*.

PROFESSOR C. A. ARMSTRONG, of Wesleyan University, delivered two lectures at Columbia University, on May 16 and 17, on 'The Characteristics of the Present Age' and 'The Future Course of Thought.' These were the concluding lectures in the special course which has been given at Columbia during the year.

PROFESSOR CHARLES M. BAKEWELL has been advanced to a full professorship at the University of California. He was formerly associate professor of philosophy.

PROFESSOR ERICH ADICKES, of Münster, has been called to the University of Tübingen and will enter upon his duties there in the fall.

PROFESSOR STANGE, of Königsberg, has been called to the University of Greifswald.

DOCTOR BRUNO BAUCH has been appointed on the editorial staff of the *Kantstudien* in the place of Doctor Schelers.

THE JOURNAL OF PHILOSOPHY

PSYCHOLOGY AND SCIENTIFIC METHODS

OF NEURURGIC AND NOETIC CORRESPONDENCES

I.

IN these days our masters in psychology teach us to throw aside the psychological atomism of our forefathers, and ask us to look upon consciousness as systemic in its nature. That this modern teaching is warranted I fully agree, and in fact am inclined to hold that our conception of systems existing in the physical world is gained only through the recognition in a marked form in nature of certain of the characteristics which we find within consciousness itself.

Of all the systems existing in the physical world the most interesting to the psychologist is the human nervous system, and this because of our discovery that changes in the degree of the activities within this nervous system correspond in some way with modifications within consciousness.

The acute investigations of the neurologist during the last century have enormously increased our knowledge of the nature of this nervous system; and have brought out clearly one fact which seems to the writer to be of great importance to the psychologist. They have taught us that the nervous system is not a simple system, but is really a system of minor systems of hypothetical nervous elements. Within the nervous system, taken as a whole, we find minor nervous systems of the first order, one (α) which has to do with environmental stimulation; another (β) which has to do with the organism's reaction upon its environment; and another very broad system (γ) which has to do with the coordination of minor nervous systems α and β . But within these minor nervous systems of the first order we find minor nervous systems of lower orders, one within another in indefinite number. Each minor nervous system of one of the lower orders is integrated, as we say, and has its characteristic individuality; but these minor nervous systems of the lower orders are interrelated and integrated to form broader minor systems, and all

of these latter are bound together to form the highly complex nervous system as a whole.

This being so, it is exceedingly interesting to note that the introspective psychologist in like manner discovers, not only that consciousness is systemic, but that it is a vastly complex system of minor psychic systems. We find, for instance, minor psychic systems of what we may call the first order; (A) sensations, which have to do with environmental stimulation; (B) instinct feelings, which have to do with reaction upon the environment; and (C) the very broad realm of ideas,—of thoughts, which has to do with the coordination of minor psychic systems A and B. But within these minor psychic systems of the first order we find minor psychic systems of a second order. In the realm of sensation we have light, sound, etc.; in the realm of instinct-feeling various types of emotion, for instance, love, anger, etc.; and in the realm of thought a vast array of what, following Stout, we may call apperceptive systems. And beyond this, within each of these minor psychic systems of the second order we find an indefinite number of minor psychic systems of still lower orders. Each minor psychic system of one of the lower orders is integrated, as we say, and has its characteristic individuality; but these minor psychic systems of the lower orders are inter-related and integrated to form broader minor psychic systems, and all of these latter are bound together to form the highly complex psychic system which we call consciousness.

In this and later articles, which through the courtesy of the editor will appear in successive numbers of this JOURNAL, I shall ask the reader to consider the meaning of, and certain implications of, this fact that consciousness is a complex system of minor psychic systems.

II.

In the remainder of this article I shall consider briefly the nature of the correspondence between nervous activities and modification within consciousness. And in the beginning I may say that it seems perfectly clear to me that, if we had discovered the broad correspondence above considered before we had been taught to believe that the activities of the cortex of the brain are alone concerned with modifications of consciousness, we would not have considered this latter hypothesis tenable. On the contrary, we would have assumed that the correspondence between what I have called *neururgic*¹ and noetic changes is thoroughgoing; that not only is there no modification of consciousness without a *neururgic* change; but

¹There is no word in current use signifying 'relating to the activity of nerve.' I have therefore used this term in previous writings as a convenient one to express this meaning.

that no neururgic change can occur without a corresponding modification of consciousness.

We would have made this assumption because, with the data before us, and without the preconceptions with which we now approach this subject, we would consider the problem somewhat as follows:

We would begin with the assumption, which I think we are entitled to make, that each nervous element is in some measure active so long as it is alive. If this is true, then whenever we observe what we call a special activity in a part of the nervous system we are dealing really with what is merely an emphasis of activity in a special part of an all-active system.

If we thus assume that all parts of the living nervous system are active, then we may symbolize its neururgic condition in spatial terms by conceiving the neural elements to be spread out on a plane; and so distributed that each neural element would be represented by a little square on a flat surface divided by two sets of equidistant lines drawn at right angles to one another. We may then represent the amount of activity of each element by a certain rise of its corresponding little square above the plane. In any moment considered all elements would rise to some degree above the plane; but some elements would rise higher than others, and the neururgic condition of the whole system would then be comparable to the surface of a liquid on which would appear a wave pattern.

That is, at each moment the nervous system as a whole displays what we may call a *neururgic pattern*, in which certain parts are more markedly active than others. The markedly active parts are not the only active parts; but their activities are set over in contrast with the great body of less markedly active parts, which latter form an undifferentiable mass of minor activities against which specially marked activities appear as *emphases* of activity.

Having thus represented to ourselves the condition of the ever active nervous system we would then argue that, if the neururgic and noetic correspondence is thoroughgoing, the condition of consciousness at any moment may be described in similar terms as follows. At each moment, consciousness, which is a vastly complex noetic system of systems, displays what we may call a *noetic pattern* in which certain psychic parts are more emphatic than others. The markedly emphatic parts are not all there is of consciousness in any moment under consideration, but these markedly emphatic parts are merely set over in contrast from the great body of less emphatic parts; which latter form an undifferentiable mass of minor psychic parts against which the specially emphatic parts appear as *psychic emphases*.

And this we would find to accord with experience. For in the first place, we have what is generally agreed to be ample evidence that the psychic states which we designate as the field of attention, (what under our terminology we would call the noetic emphases), do correspond with emphatic activities in parts of the nervous system, (what I would call the emphases of activity in the neururgic pattern).

This being granted, the question would arise whether there exists an undifferentiable noetic mass against which these noetic emphases are contrasted, corresponding with the undifferentiable neururgic mass against which the neururgic emphases are contrasted. And to this question we would not hesitate to give an affirmative answer. For we note that the field of attention, if we may use a current ocular simile, spreads out from a clear focus to a margin, and this margin to 'fringes,' and these 'fringes' to a vague and illusive aura. Even if we experience the most punctual of vivid sensations, for instance, it does not seem to exhaust the consciousness of the moment; there is always felt to be a something more of consciousness of the moment when the sensation appears; its appearance clearly does not involve the annihilation of this rest of consciousness. And this becomes clearer in the fact that we have come to speak of these clear elements of attention as presentations. If they are properly so called, they must be presentations to something; and under our view that to which they are presentations, or, as I should prefer to say, increments, is the undifferentiable mass of unemphatic psychic parts which constitutes what we may well speak of as the *field of inattention*.

This field of inattentive consciousness we would hold must always exist while life exists, and we would, therefore contend that the common man is wrong in stating that we are unconscious during sleep or in states of coma. And if evidence in favor of this statement were demanded we would in turn demand from our critic evidence that inattentive consciousness does not exist under such conditions; asking him to note that the only evidence he has to offer in favor of his contention is the fact that he is unable to recall in full-awake life any psychic events of the moments of what he calls unconsciousness; and showing him that his argument if valid would compel him to hold that he is unconscious in all moments where the psychic events fail of recall in later moments, which would force him to refer all forgetfulness to moments of unconsciousness in the past, a position which is, of course, untenable.

We would then have before us for explanation the facts which in the main have led to the adoption of the current theory that the 'brain is the organ of mind,' viz., (1) the fact that the occurrences within the field of attention, or, as we should say, the noetic em-

phases, correspond in general with emphatic activities in the cortex of the brain; and (2) the fact that a large mass of activities in parts of the nervous system, other than the cortex of the brain, are not accompanied by any noticeable modifications of consciousness.

(1) The first fact we would restate in terms of the theory of a thoroughgoing neururgic and noetic correspondence by saying that the mass of noetic emphases corresponds with neururgic emphases within the brain.

And this would seem to us to be a most natural condition, for a number of reasons: (1) because so large a mass of the nervous system is crowded into the brain, where the various parts are cross connected and interrelated as is impossible in other parts of the system; (2) because, in consequence of this fact, and in consequence of the close relation of the brain to the most highly elaborated sense organs, a very large variety of diverse and forceful stimuli from the environment are brought to bear upon the brain; and (3) because the brain part of the system, if genetically considered, appears to be of late development; and this being so, it must be supposed, speaking broadly, to be markedly mobile, as it were, less fixed in the interrelations of its parts, and more subject to disturbances of normal functioning, than is the case with the other parts of the whole nervous system.

(2) As to the second point we would, of course, agree that a large mass of activities, in parts of the nervous system other than the brain, are not accompanied by any *noticeable* modifications of consciousness; but we would hold that this does not stand in opposition to the hypothesis that the psychic correspondents of these activities exist, but are part and parcel of the vast undifferentiable psychic mass, *i. e.*, the field of inattention.

III.

And here we find our theory throwing light upon an important problem which is not touched by the currently accepted view. For we note that typical reactions which seem invariable are, broadly speaking, what men call unconscious; or, as we should say, have accompanying them only such psychic correspondents as are wholly within the field of inattention; while, on the other hand, variant actions in general are the ones which have correspondent with them emphases within the field of attention.

As a preliminary to the study of the problems which these facts present to us, let us consider for a moment the basis of what we call variation in the form of animal activities.

If we could isolate a living cell we must assume that it would react in a definite way to appropriate stimuli, and its reactions we may, if we choose, call its 'instinct-actions.'

Now if a number of such cells (for simplicity let us say 5), are brought into relation as a little organism; and if each of the cells retains specific modes of instinct action;² then, if we consider the group rather than its elements, the combined instinct actions of the elements would give what would appear as a specific instinct action of the whole group, or little organism.

The normal instinct actions of the five elements would together constitute the normal instinct action of the group. But if the instinct action of one of the five elements should be, *not changed in character, but merely markedly emphasized*, then the normal instinct action of the group would be modified. This emphasis of activity in the element would thus appear to be the basis of modification of the instinct action of the group taken as a unit.

If now we suppose that for each of these five elements is substituted a little system of five elements; then we would have a system of five minor systems of five elements each. Each of these five minor systems would display its own group instinct actions; and the instinct actions of all the five minor systems would give us what we would call the normal instinct action of the whole system of five minor systems.

Here again; if the instinct action of a special minor system within the group of five, were not changed in character, but merely became emphatic, the typical instinct action of the group taken as a whole would appear to be modified. And even if the instinct action of only one element in one minor system were emphasized, its little minor system's typical instinct action would be modified, and thus also we should have a modification of the typical instinct action of the whole large organism. It would thus appear that modification of the normal instinct actions of such a simple organism of 25 elements could all be traced back to mere emphases of activity in some of the minor systems, or in the elementary parts themselves.

If this is the process of modification in such a case as I have pictured, it is easy to see how complex might be the modifications of the typical instinct actions of an enormously complex system of minor systems such as the human nervous system is; and nevertheless it might well be that these variations of mode of instinct action of the organism as a whole might be all of them traceable back to mere emphases of the instinct actions in some of the minor nervous systems, and then farther back still to a mere emphasis of the instinct action in some element of a minor nervous system.

Emphases of activity in minor parts would thus appear to be

² These will of course be different from the instinct actions of the cell when in isolation.

the basis of modification of instinct actions of the organism as a whole.

If all this is true we should certainly be led to expect to find exactly what we do discover; viz., that variant activities, being those which involve neururgic emphases, must also involve noetic emphases; while typical, and apparently unmodified, activities do not involve either neururgic or noetic emphases. In other words the psychic correspondents of those of our instinct actions which are typical and relatively unmodifiable (*e. g.*, our 'reflex actions') are almost wholly within the field of inattention; while variations from these typical forms of reaction have corresponding with them forms of consciousness which we speak of as intelligent.

Corroboration of this special point is had if we ask ourselves how these emphases of activity within the nervous system may be brought about.

(1) In the first place, in all organisms, from the simplest to the most complex, they would certainly be in great part determined by the energy of stimuli reaching the parts of the system from the environment of the whole system.

But when the organism is very complex, emphases within minor systems might be due to influences quite within the whole system; appearing in parts of that system which are environmental, as it were, to the minor system whose activity is emphasized when modification occurs.

(2, A) But these influences within the complex system, which thus produce emphases of activity in one of its minor systems, might themselves be emphatic activities in other minor systems; or on the contrary, (2, B) they might arise out of the great undifferentiable mass of unemphatic activities against which the emphases of activity are contrasted.

If then our theory of a thoroughgoing neururgic and noetic correspondence is true we should expect to find (1) the most marked form of these variations, as thus connected with states of attention, distinctly related to the reception of environmental stimuli. That this is true is clear.

But beyond this, as we have seen that the emphases to which modifications of activity are due may be the result of influences arising within the whole nervous system, and (2, A) as the result of specially emphatic activities already existing within the system; so we should expect to find the emphases within consciousness accompanying modifications of instinct action often due to emphatic influences within the conscious system itself; and this we surely do find in the stream of thought which runs parallel with a large proportion of those variations of activity which we observe in ourselves.

In this stream each emphasis in attention seems to be influential in producing its successor.

But finally, (2, B) as we have seen that the neururgic emphases to which variations of activity are due may be the result of influences arising out of the great undifferentiable mass of unemphatic activities against which the emphases of activity are contrasted; so we should expect to find the emphases within consciousness, which accompany variations of activity, determined often by influences which are felt to arise out of the undifferentiable psychic mass of unemphatic psychic states; *i. e.*, we should expect to find the field of attention at such times determined by obscure influences from the field of inattention. And this we surely do find in what is called voluntary attention; *i. e.*, in attention which is maintained as such by the reaction of the whole system of consciousness. And in this, as all psychologists acknowledge now-a-days, we have the root of that modification of our reactions upon the outer world which we describe as due to volition.³

In the preceding paragraphs I have presented a version of the theory of neururgic and noetic correspondences which enables us to hold that it is thoroughgoing. The test of a theory lies in the explanation it enables us to give of facts of experience which otherwise baffle us. In the articles to follow this I shall first attempt to show that if we accept the theory thus outlined we are able to answer certain questions of interest and importance; and shall then trace some implications of the theory which have bearing upon current psychological problems.

HENRY RUTGERS MARSHALL.

NEW YORK CITY.

DIMENSIONAL EQUATIONS AND THE PRINCIPLE OF THE CONSERVATION OF ENERGY

PHYSICISTS generally consider that the assumption of three independent quantities as fundamental dimensions is necessary and sufficient. Time, space and mass are usually selected as elemental, and expressions for physical units, in terms of these three, are called the dimensional equations of these quantities. In Table I. (accompanying) the usual expressions for the more common physical quantities are given.

³ The relation between intelligence and variation from typical forms of reaction I have discussed at length in my 'Instinct and Reason': the limits of this paper prevent any further consideration of it here. Cf. especially Chapter XVII.

The selection of time and space as fundamental is inevitable, as these are respectively the 'forms' of the inner and outer experience of our consciousness, but the use of mass as the third dimension is open to serious objections. It may be noted that much confusion is caused by the indiscriminate use of the terms mass and matter. The hypothesis of matter as being something behind the concept of mass—*i. e.*, the existence of a great variety of inert bodies divisible into molecules, atoms, electrons, ions or what not, causing the phenomena of mass—is purely metaphysical and entirely without any physical basis. Mass free from the matter hypothesis is real, but a complex quantity containing the time and space factors, and hence should not be used as a fundamental dimension.

The basis of modern physics is the principle of the conservation of energy, and upon this dogma rests the whole superstructure of quantitative measurements. Energy is considered an invariant in amount through all its transmutations, the sum total remaining the same to-day, yesterday and forever; *i. e.*, energy is independent of time and space. It can also exist where there is no mass, witnesseth: the transmission of energy through vacua in the forms of light, radiant heat, electromagnetic waves, Roentgen rays, etc. But in Table I. (giving the system now in general use) the dimensions of energy (work) are given as L^2MT^{-2} . Evidently this is a contradiction of the principle just stated and, therefore, if the conservation of energy dogma be accepted, mass can not be independent of time and space dimensions. Further, since all our knowledge of mass comes to us through our senses by means of energy-changes in time and space, it would seem more logical to consider energy the simple and mass the complex quantity.

Using E as the symbol of energy, and solving the dimensional equation for energy, as given in Table I. ($E = L^2MT^{-2}$), we have $M = L^{-2}ET^2$. Mass is thus a complex quantity, having the dimensions of space, energy and time, or, in other words, mass is energy divided by the square of a velocity.

If mass be a complex quantity, time and space are erroneously introduced or omitted wherever mass occurs in the dimensional equation. Substituting for mass its dimensions in Table I., a new system of dimensional equations is derived in which the fundamental quantities are space, energy and time. This system is founded upon the principle of the conservation of energy and is thus in accord with the fundamental law of modern physics. The resulting equations given in Table II. express directly the nature of each unit as we are accustomed to think of them. For example, in mechanical quantities, power $= ET^{-1}$ = energy per unit of time; and force $= EL^{-1}$, *i. e.*, force times space = energy.

TABLE I.

Physical Quantity.	Dimensions.	
<i>Fundamental:</i>		
Length.....	L	
Mass.....	M	
Time.....	T	
<i>Geometric:</i>		
Surface.....	L^2	
Volume.....	L^3	
<i>Mechanical:</i>		
Velocity.....	LT^{-1}	
Angular velocity.....	T^{-1}	
Acceleration.....	LT^{-2}	
Angular acceleration.....	T^{-2}	
Force.....	LMT^{-2}	
Work.....	L^2MT^{-2}	
Power.....	L^2MT^{-3}	
Pressure.....	$L^{-1}MT^{-2}$	
Momentum.....	LMT^{-1}	
Moment of a couple.....	L^2MT^{-2}	
Moment of inertia.....	L^2M	
<i>Magnetic Quantities:</i>	Electrostatic.	Electromagnetic.
Strength of pole.....	$L^{\frac{1}{2}}M^{\frac{1}{2}}$	$L^{\frac{3}{2}}M^{\frac{1}{2}}T^{-1}$
Magnetic moment.....	$L^{\frac{3}{2}}M^{\frac{1}{2}}$	$L^{\frac{5}{2}}M^{\frac{1}{2}}T^{-1}$
Intensity of magnetization.....	$L^{-\frac{3}{2}}M^{\frac{1}{2}}$	$L^{-\frac{1}{2}}M^{\frac{1}{2}}T^{-1}$
Field intensity.....	$L^{\frac{1}{2}}M^{\frac{1}{2}}T^{-2}$	$L^{-\frac{1}{2}}M^{\frac{1}{2}}T^{-1}$
Magnetic potential.....	$L^{\frac{3}{2}}M^{\frac{1}{2}}T^{-2}$	$L^{\frac{3}{2}}M^{\frac{1}{2}}T^{-1}$
Magnetic induction.....	$L^{-\frac{3}{2}}M^{\frac{1}{2}}$	$L^{-\frac{1}{2}}M^{\frac{1}{2}}T^{-1}$
Magnetizing force.....	$L^{\frac{1}{2}}M^{\frac{1}{2}}T^{-2}$	$L^{-\frac{1}{2}}M^{\frac{1}{2}}T^{-1}$
Permeability.....	$L^{-2}T^2$	A number
Reluctance.....	LT^{-2}	L^{-1}
Magnetic flux.....	$L^{\frac{3}{2}}M^{\frac{1}{2}}$	$L^{\frac{3}{2}}M^{\frac{1}{2}}T^{-1}$
Magnetomotive force.....	$L^{\frac{3}{2}}M^{\frac{1}{2}}T^{-2}$	$L^{\frac{3}{2}}M^{\frac{1}{2}}T^{-1}$
Reluctivity.....	L^2T^{-2}	A number
Susceptibility.....	$L^{-2}T^2$	A number
<i>Electrical Quantities:</i>		
Resistance.....	$L^{-1}T$	LT^{-1}
Electromotive force.....	$L^{\frac{1}{2}}M^{\frac{1}{2}}T^{-1}$	$L^{\frac{3}{2}}M^{\frac{1}{2}}T^{-2}$
Current.....	$L^{\frac{3}{2}}M^{\frac{1}{2}}T^{-2}$	$L^{\frac{1}{2}}M^{\frac{1}{2}}T^{-1}$
Quantity of electricity.....	$L^{\frac{3}{2}}M^{\frac{1}{2}}T^{-1}$	$L^{\frac{3}{2}}M^{\frac{1}{2}}$
Surface density.....	$L^{-\frac{1}{2}}M^{\frac{1}{2}}T^{-1}$	$L^{-\frac{3}{2}}M^{\frac{1}{2}}$
Capacity.....	L	$L^{-1}T^2$
Specific inductive capacity.....	A number	$L^{-2}T^2$
Electric force or intensity of electric field...	$L^{-\frac{1}{2}}M^{\frac{1}{2}}T^{-1}$	$L^{\frac{1}{2}}M^{\frac{1}{2}}T^{-2}$
Electric energy.....	L^2MT^{-2}	L^2MT^{-2}
Electric power.....	L^2MT^{-3}	L^2MT^{-3}
Resistivity (specific resistance).....	T	L^2T^{-1}
Conductance.....	LT^{-1}	$L^{-1}T$
Conductivity (specific conductance).....	T^{-1}	$L^{-2}T$
Coefficient of induction.....	$L^{-1}T^2$	L

TABLE II.

Physical Quantity.	Dimensions.	
<i>Fundamental :</i>		
Length	L	
Energy	E	
Time	T	
<i>Geometric :</i>		
Surface.....	L^2	
Volume	T^3	
<i>Mechanical :</i>		
Velocity.....	LT^{-1}	
Angular velocity.....	T^{-1}	
Acceleration.....	LT^{-2}	
Angular acceleration.....	T^{-2}	
Mass	$L^{-2}ET^2$	
Force.....	$L^{-1}E$	
Work	E	
Power	ET^{-1}	
Pressure.....	$L^{-3}E$	
Momentum	$L^{-1}ET$	
Moment of a couple.....	E	
Moment of inertia.....	ET^2	
<i>Magnetic Quantities :</i>	Electrostatic.	Electromagnetic.
Strength of pole.....	$L^{-\frac{1}{2}}E^{\frac{1}{2}}T$	$L^{\frac{1}{2}}E^{\frac{1}{2}}$
Magnetic movement.....	$L^{\frac{1}{2}}E^{\frac{1}{2}}T$	$L^{\frac{1}{2}}E^{\frac{1}{2}}$
Intensity of magnetization	$L^{-\frac{3}{2}}E^{\frac{1}{2}}T$	$L^{-\frac{1}{2}}E^{\frac{1}{2}}$
Field intensity.....	$L^{-\frac{1}{2}}E^{\frac{1}{2}}T^{-1}$	$L^{-\frac{3}{2}}E^{\frac{1}{2}}$
Magnetic potential	$L^{\frac{1}{2}}E^{\frac{1}{2}}T^{-1}$	$L^{-\frac{1}{2}}E^{\frac{1}{2}}$
Magnetic induction.....	$L^{-\frac{1}{2}}E^{\frac{1}{2}}T$	$L^{-\frac{3}{2}}E^{\frac{1}{2}}$
Magnetizing force.....	$L^{-\frac{1}{2}}E^{\frac{1}{2}}T^{-1}$	$L^{-\frac{3}{2}}E^{\frac{1}{2}}$
Permeability.....	$L^{-2}T^2$	A number
Reluctance	LT^{-2}	L^{-1}
Magnetic flux.....	$L^{-\frac{1}{2}}E^{\frac{1}{2}}T$	$L^{\frac{1}{2}}E^{\frac{1}{2}}$
Magnetomotive force.....	$L^{\frac{1}{2}}E^{\frac{1}{2}}T^{-1}$	$L^{-\frac{1}{2}}E^{\frac{1}{2}}$
Reluctivity	L^2T^{-2}	A number
Susceptibility.....	$L^{-2}T^2$	A number
<i>Electrical Quantities :</i>		
Resistance	$L^{-1}T$	LT^{-1}
Electromotive force	$L^{-\frac{1}{2}}E^{\frac{1}{2}}$	$L^{\frac{1}{2}}E^{\frac{1}{2}}T^{-1}$
Current.....	$L^{\frac{1}{2}}E^{\frac{1}{2}}T$	$L^{-\frac{1}{2}}E^{\frac{1}{2}}$
Quantity of electricity	$L^{\frac{1}{2}}E^{\frac{1}{2}}$	$L^{-\frac{1}{2}}E^{\frac{1}{2}}T$
Surface density	$L^{-\frac{3}{2}}E^{\frac{1}{2}}$	$L^{-\frac{3}{2}}E^{\frac{1}{2}}T$
Capacity	L	$L^{-1}T^2$
Specific inductive capacity.....	A number	$L^{-2}T^2$
Electric force or intensity of electric field ...	$L^{-\frac{3}{2}}E^{\frac{1}{2}}$	$L^{-\frac{1}{2}}E^{\frac{1}{2}}T^{-1}$
Electric energy	E	E
Electric power.....	ET^{-1}	ET^{-1}
Resistivity (specific resistance).....	T	L^2T^{-1}
Conductance.....	LT^{-1}	$L^{-1}T$
Conductivity (specific conductance).....	T^{-1}	$L^{-2}T$
Coefficient of inductance.....	$L^{-1}T^2$	L

Especially in the magnetic and electrical quantities is there a great advantage in eliminating the mass dimension and using energy with time and space in its stead. Take, for example, the strength of pole in the electro-magnetic system. This quantity is derived from the experimentally observed fact that between two equal and opposite magnetic poles, of strength ' m ,' and at a distance ' l ' apart, there is a force which is proportional to m^2/l^2 . Hence $m^2 = FL^2$. But $E = FL$, hence $m^2 = EL$, and therefore $m = E^{\frac{1}{2}}L^{\frac{1}{2}}$. The superiority of this expression to $L^{\frac{1}{2}}M^{\frac{1}{2}}T^{-1}$ in practice, as well as in theory, will be admitted by all.

It is noteworthy that all the magnetic quantities in the electro-magnetic system are independent of time. From the usual conception of these quantities this evidently should be the case, and it appears that the time dimension given in Table I. is erroneously introduced by the use of mass as a fundamental quantity. It is, however, unnecessary to go further into detail. The expressions in Table II. are so plain that 'he who runs may read.'

NEW MEXICO SCHOOL OF MINES, SOCORRO. C. EDWARD MAGNUSSON.

DISCUSSION

DR. MONTAGUE'S THEORY OF TIME-PERCEPTION

IN the January number of *The American Journal of Psychology* for 1904, Dr. W. P. Montague has given a theory of time-perception and in particular, of the specious present, which is so clear-cut and ingenious as to be well-nigh captivating. And yet, after reading this article, I cannot refrain from calling attention to one or two points which, as it seems to me, need at least some reconsideration.

If I have correctly read Dr. Montague, he sets out to explain how that finitely extended segment of time in the individual consciousness known as the 'specious present,' can exist in the metaphysical present which is infinitesimal, that is, which is a segment of time whose extent is zero. "How is it that at any one moment there can appear to be present several moments?" "Every psychosis," he continues, "has two distinguishable but inseparable aspects, the subjective and the objective. The subjective element or 'knowing thought' is the whole system of conscious contents taken collectively and *including the incoming content*" (my italics), "while the latter is the *object* of the (normally prospective) act of attention. . . . We may describe every psychosis as the assimilation of an entering sensation-mass by a receiving apperception-mass." The explanation is: "Let Δo symbolize the amount of change or alteration in the objective content o produced in any

period of time Δt , and let Δs symbolize the resulting change produced in the subjective aspect of consciousness during the same time. Then $\frac{\Delta o}{\Delta s}$ will represent a change in the objective as compared with the change in the subjective element in the time Δt . As Δt is made to decrease without limit, Δo and Δs will correspondingly decrease, but the fraction $\frac{\Delta o}{\Delta s}$ will not necessarily decrease, but will either approach, or if the rate of change be uniform, will maintain the finite value $\frac{do}{ds}$. Now this derivative of the objective change with regard to the change of the subjective element is a finite quantity, but one that is realized at each infinitesimal moment of time."

As Dr. Montagues says, he is applying calculus to increments of change, as it is ordinarily applied to increments of substance; and the one kind of increment produced in a conscious state differs from the other in that the increment of change, 'while it varies directly with the stimulus causing it, also varies inversely with the content in which it is caused.' This is already a prime difference, and suggests that before 'change' is subjected to ordinary differentiation it should be examined to see if this novel property does not need to be taken into account. But there is a more striking and pertinent difference between change and substance; the latter is defined without reference to time while the former can not be. An amount of change is always an amount of change in a certain amount of time, that is a *rate of change*. Therefore the increment in the amount of change ('produced in any period of time Δt ') which Dr. Montague symbolizes with Δo or Δs , has to be an acceleration in the rate of change of o or s . It follows that $\frac{do}{ds}$ is already what Dr. Montague wishes to call a second derivative. Now this quantity would not serve to represent or to explain the peculiarities of the specious present, as may be seen from a single illustration: when the rate of change is constant, the ideal condition supposably for a perfectly normal specious present, the derivative is zero. That is, there is no specious present.

The force of this criticism comes out specially if, as Dr. Montague suggests, one interprets his quantitative symbols 'as applying to the physiological concomitants of conscious states'; for it is obvious enough that any change in physiological processes can not be defined except as change taking place in a certain amount of time, that is, except as rate of change, so that any *increment* of change would have to be an acceleration in this rate.

Apart from this difficulty, there would come up another and

equally serious one, if a definition of 'change' were attempted which should satisfy Dr. Montague's requirement that the 'change produced in a conscious state . . . varies directly with the stimulus causing it, also varies inversely with the content in which it is caused.' Clearly the definition must involve not only the amount of incoming sensation but also the amount already present; but this last involves considering the amount which is all the time disappearing from consciousness, a quantity which I believe that Dr. Montague does not speak of. It is furthermore absolutely necessary to define the condition under which a given sensational element is said to belong to the 'objective content'; how long will it remain 'objective,' and when will it pass over and become a part only of the 'subjective aspect'? Until these two 'aspects' are exactly defined in relation to each other and the meaning of 'change' in these 'aspects' is defined, I can not see how anything at all can be said about the value of the derivative of a change in either kind of content. In short the function, even when ascertained, is, as likely as not, to be undifferentiable; in which case it would be meaningless to speak of a derivative.

The foregoing criticisms concern only the application of the differential calculus to the entities which Dr. Montague posits, and it may be that he could overcome the difficulties mentioned and obtain that derivative which he requires. There would then be a more serious objection to offer, and that would relate to the *interpretation* of his ratio. This quantity might vary as the theory requires, and still not be a measure, or as Dr. Montague says a representation, of the specious present. The derivative of two variables has, of course a fixed interpretation; and this is in the case in hand bound to be a rate of change, or a rate of rate of change, et cetera. The desired solution will be at best some such rate of change. Now I submit that the specious present of consciousness is not a rate of change; nor can I find any meaning in the statement that the specious present is 'represented' by such a quantity. The specious present, as I apprehend it, is a number of conscious elements which somehow exist together; it does not mean for us any rate of change or the like, but it means a *number of objects* which are temporally successive but yet which are by us experienced together. The few succeeding notes of a melody of which we are conscious all together, are a case in point; they do not coexist in time, but they do coexist in us. These coexisting objects, however, are not to be confounded with a rate of change; not even by one who should not believe with Russell¹ and other mathematicians, that derivatives 'are never magnitudes but only real numbers.'

¹ Russell, B., 'The Principles of Mathematics,' Cambridge, 1903, Vol. I., p. 173.

If it should appear that Dr. Montague's theory does not solve the question, 'How is it that at any moment there can appear to be present several moments?' we may still return to the older solution. It is that several moments are in fact not present at any one infinitesimal point of time or moment. They are present all together in consciousness but not altogether in time, as the question paradoxically insinuates. How this can be so has been so clearly discussed by Professor Royce² that one may almost wonder at a reappearance of the problem. Even the plain experimental psychologist who takes no delight in metaphysical explanations, to say nothing of a philosopher and logician, ought to find no difficulty in defining a personality or a consciousness as such an entity as does not exist in any one infinitesimal moment, but which occupies time as an acre occupies space. The familiar concepts of second, minute, hour, day and year are so defined, and I can see no logical or practical difficulty in defining a consciousness in exactly the same way. If any one is minded to wonder how a whole year or a specious present of consciousness can 'exist at any one moment,' he will find a clear and simple solution of the difficulty in Professor Royce's essay.

EDWIN B. HOLT.

HARVARD UNIVERSITY.

ACCOMMODATION AND CONVERGENCE—A PROTEST

A DOCTORATE thesis is but a small item in the annual output of psychological literature. If, however, it is worth reviewing at all, the reviewer may be expected to discuss what it says rather than what it distinctly does not say. Dr. Wallin's review not only failed to give my paper its proper setting in the literature, but ascribed to me a position which the paper itself definitely rejects. Moreover, the reviewer has made various misstatements in referring to minor points. In his reply to my former protest, he arranged his defence under six headings (*Psychological Bulletin*, I., 6, pp. 208ff); these I shall consider in order.

1. He still insists that I accept nativism in part, notwithstanding the fact that I reject it *in toto*. Having failed to persuade him by direct statement, I will make use of an analogy. Let us suppose that a writer on visual sensation had concluded his paper with the statement: "The Helmholtz theory seems to explain color-mixture, but it fails to account for the other facts; Hering's theory covers all the facts so far as known. Moreover, a closer examination shows that

² Royce, J., 'The World and the Individual,' New York, 1901, Vol. 2, Lecture III.; specially pages 113-142.

not even color-mixture is satisfactorily explained by Helmholtz." Should we interpret this to mean that the writer accepted Helmholtz for color-mixture but followed Hering for the remaining facts? Not only does Dr. Wallin adopt this naïve procedure in interpreting my position, but when charged with misrepresenting my attitude towards nativism, he supports his interpretation by a judicious selection of extracts from my paper. If he had seen fit to extend his quotation to include the next succeeding sentence, his readers would have seen for themselves that his review is a travesty on the paper.

2. He still maintains that I confirmed substantially all the results of Hillebrand. Here are a few facts! (All observers of normal vision; all distances expressed in millimeters.) Hillebrand's records show that 500 was confused with 250; mine show that 500 was invariably perceived to be farther than 454. Hillebrand found no perceptible difference between 333 and 1,000; none of my observers ever failed to discriminate correctly between 333 and 403. Hillebrand's results show an inability to distinguish 200 from 1,000; all of my observers differentiated at least five intervals between these limits. Do I in these cases confirm Hillebrand's 'experimental results as such'?

3. The review stated that my apparatus was substantially the same as that of three of my predecessors. I replied that one apparatus could not resemble a variety of very different patterns. The reviewer in reply quotes my statement that my apparatus was the same as Hillebrand's. But did not Arrer and Dixon also employ apparatus?

4. The review stated that in Hillebrand's apparatus 'the eye localizes a black patch at a greater distance than a white' (p. 88). When I pointed out his error he quotes himself as saying: "The eye localizes a black patch (or what not) at a greater distance than a white" (p. 209). As a matter of fact, his modified quotation is as far from the truth as his original statement. Several hundreds of observations which he will find averaged and tabulated in my paper (pp. 178-182) testify against him.

5. The reviewer says (p. 210): "I submitted that the line of accommodation may be one factor, etc." But he did not; he submitted that the 'range of accommodation' was a possible factor (p. 86). And it is clear precisely from his own reference to Sanford, that 'line of accommodation' and 'range of accommodation' are wholly different things.

6. There can be no harm in making suggestions for further work. My criticism of Dr. Wallin's suggestions was that they are already contained in the literature of long ago.

J. W. BAIRD.

CORNELL UNIVERSITY.

A NOTE IN REPLY TO DOCTOR PERRY

MY attention has just been called to an article in this JOURNAL, by Doctor Ralph Barton Perry, entitled 'Recent Philosophical Procedure with Reference to Science,' in which I am charged with 'indulging in considerable riddling of the conceptions of science,' censured for 'criticizing science negatively and not positively, and coupled with Professor Karl Pearson as 'furnishing convenient illustrations of reactionary tendencies in contemporary philosophy of science,' mine being 'the untenable position of refuting science in detail and his that of refuting philosophy in general.' Now, I, for my part, should be grateful to Doctor Perry, if he could, either privately or otherwise, cite instances in justification of his strictures of my procedure. My concern has been with Naturalism, which is a form of philosophy and not science, and a form of philosophy which scientific men—Professor Pearson among them—have done a good deal to expose. I have devoted two or three pages in my second edition (Vol. I., pp. 303–5) to this point, and will venture to refer anyone interested to these. Here I will content myself with saying that I have never referred to any scientific details except they were misconstrued by the naturalistic philosopher, and never without falling back on scientific specialists for support. JAMES WARD.

TRINITY COLLEGE, CAMBRIDGE, ENGLAND.

SOCIETIES

THE NEW YORK ACADEMY OF SCIENCES. SECTION OF ANTHROPOLOGY AND PSYCHOLOGY

THE regular meeting of the section was held on March 28 in conjunction with the New York Branch of the American Psychological Association. The afternoon session was held at the Psychological Laboratory of Columbia University, the evening session was held as usual at the American Museum of Natural History. The program was as follows:

Mental Resemblance of Twins: Professor E. L. THORNDIKE.

A report was made on the general results of a comparison of twins in tests of attention, perception, association, rate of movement, addition, multiplication and stature. The resemblances, as measured by a rough, preliminary method, were about .75. The amount of this resemblance that should be attributed to similarities in home training was apparently slight. There was no evidence in the

results to support the theory that twins fall sharply into two species, those very closely alike and those no more alike than ordinary brothers and sisters.

Measurements of the Mentally Deficient: MISS NAOMI NORSWORTHY.

The paper was a report of some work done among one hundred and fifty mentally deficient children in two state institutions for the feeble-minded and in two of the special classes organized in the New York schools. The measurements taken were physical, such as height, weight and temperature, tests of maturity, as perception of weight and of form, tests of memory and tests of intelligence or the ability to deal with abstract ideas. The main conclusion reached was that the difference between idiots and people in general is less than has been commonly supposed, and is a matter of degree rather than of kind.

Color Contrasts: DR. R. S. WOODWORTH.

Dr. Woodworth presented a modification of Hering's binocular demonstration of the 'physiological' origin of simultaneous contrast. If monocular fields of different colors, with a gray spot on each, be combined by the stereoscope, each gray retains the contrast color suitable to its own field, however the conscious background may vary as the result of fusion or rivalry of the two fields. The demonstration is readily extended to cover brightness contrast, by placing gray spots on white and black fields which are combined as before. To show that these effects are not the result of a binocular mixture of the gray with the opposite field, a number of gray spots may be scattered over one field, and the other field made particolored; the gray spots appear all alike, or nearly so, though binocular mixture would have made them differ.

New Apparatus and Methods: PROFESSOR J. McKEEN CATTELL.

(1) Kymographs were exhibited in which typewriting ribbons were applied to secure the records. Electro-magnetically moved points strike the paper tape, whose rate of movement may be adjusted, and a record is left by the slowly moving typewriter ribbon. Two forms were exhibited, in one of which the kymograph was driven by an electric motor and in the other by clock-work. In the latter the clockwork could be started and stopped by an electric current by an observer in another room. The kymographs, while not especially suited for drawing curves, are much more convenient than smoked paper or siphon pens for time records, such as rhythms, conflict of the visual fields, after-images, etc. (2) Instruments were shown by which a number of faint clicks could be given at intervals of a second for testing sharpness of hearing and defective hearing. Instead of giving the observer a continuous sound, such

as from the ticking of a watch, two, three, four or five faint sounds are made, and the observer is asked how many he hears. By this method errors from the common illusions in the case of faint sounds are avoided. (3) A method was exhibited for testing color blindness by the time it takes to distinguish one color from another. By the normal individual red can be distinguished from green in about the same time as blue from yellow, but it takes longer to distinguish red from orange. If the observer belongs to the red-green class of the color blind, he can distinguish blue from yellow as quickly as others, but not red from green. An instrument was shown by which the conditions of the railway service can be imitated, it here being necessary first to distinguish a certain color and then to make the proper movement.

The Time of Perception as a Measure of Differences in Sensation:

Mr. V. A. C. HENMON.

The aim of the investigation upon which this paper is based is to measure qualitative differences in color by the time of perception. The colors taken as standards were red, orange and yellow, whose wave-lengths had been definitely determined. Equal intermediate steps between orange and red were produced by the mixture of pigments. Small squares of each of these colors, 3 x 3 cm., were mounted on cards side by side with red, and exposed to the subject by means of a drop-screen so arranged as to give almost instantaneous exposure. The subject reacts with the right or left hand according as the predetermined stimulus appears to the right or left. The registration is made with the Hipp chronoscope. The results of 6,000 reactions gave evidence of the validity of the method and the fruitfulness of the problem. Equal objective differences are correlated with differences for consciousness, showing a definite increase as the magnitude of difference is decreased.

The Daily Curve for Efficiency: Mr. H. D. MARSH.

Habits Based on Analogy: Professor CHARLES H. JUDD.

The Determination of the Habit Curve for Associations: Professor J. E. LOUGH.

A report of experiments made in the psychological laboratory of the school of pedagogy. It was found that the time required to write series of letter-equivalents when the 'key' of equivalents was not memorized, but was consulted as frequently as necessary, diminished as the associations between the letter-equivalents became more habitual. The curves representing the results of these experiments exhibit all the characteristics of the typical habit curve. Repetition of the experiment using new 'keys' shows little or no interference due to earlier associations, while with each succeeding

'key' the physiological limit was reached after a constantly diminishing number of trials.

A Neglected Point in Hume's Philosophy: Dr. WILLIAM P. MONTAGUE.

The paper aimed to show (1) that Hume (in Part IV., Section II. of the 'Treatise') had quite unwittingly furnished what from his own point of view should have been regarded as a logical deduction and justification—rather than the mere psychogenetic description, which it purported to be,—of the realistic belief in the independent and uninterrupted existence of sensible objects; and (2) that the *naïve realism* or positivism thus accidentally promulgated was, from both the scientific and the popular standpoint, a far sounder and more inviting doctrine than the empirical idealism or sensationalism with which Hume's name is usually associated.

Action as the Concept of Historical Synthesis: Mr. PERCY HUGHES.

Rickert's description of the content of history as reality is amended to read *past reality*, the past of evidence. From this definition the individual, objective, moving and continuous character of historic content follows; and further, the conception of action as descriptive of both historic content and historic synthesis. An historical synthesis is a past action that itself has created a certain synthesis of evidence; which the historian discovers. In such synthetic actions, 'simple' actions retain their individuality as means, stimuli or hindrances to the main action, *i. e.*, in a functional relation.

At the close of the afternoon session the members were invited to attend a lecture given at Columbia University by Professor John Dewey on 'The Psychologist's Account of Knowledge.'

JAMES E. LOUGH,
Secretary.

REVIEWS AND ABSTRACTS OF LITERATURE

La Philosophie en Amérique. Depuis les Origines jusqu'à nos Jours.

L. VAN BECELAERE, O.P., Member of the American Philosophical Association. New York, The Eclectic Publishing Co., 1904. Pp. xvii + 180.

The book before us is the most complete presentation of the whole development of philosophy in America which has yet appeared. Several of the general histories of philosophy contain very brief sketches of this development, a number of articles in periodicals have summarized it, and there are several studies of special periods which are more complete than the corresponding discussions in the present volume; but there is no one work which covers the whole field so well as this. The author has

attempted a brief exposition of the evolution of our philosophical thinking with its relations to the political, social and educational history of the country. Professor Royce stands sponsor for the book, and has contributed to it a very interesting introduction: an introduction which is an appreciation, and which, at the same time, points out most of the sins of omission and commission likely to be charged to the author by reviewers.

The book is a republication in a very much revised and completed form of a series of articles on philosophy in America recently contributed by the author to the *Revue Thomiste* (Paris). It opens with a discussion of the American spirit and its relation to speculative thought. He finds in America a most pronounced type of Anglo-Saxon philosophy. This philosophy, he tells us, is characterized by a practical tendency; it is a realistic and positivistic philosophy, not a philosophy of great metaphysical flights and unlimited horizons. He does not, of course, contend that this realism has been universal; indeed he perhaps underestimates its influence at the present time. Professor Royce suggests that 'barren realism' has not been universal at any time in our history.

Aside from this realistic tendency, Father van Becelaere finds responsiveness, accessibility to ideas from without, the most striking characteristic of our philosophical development. In philosophy, as elsewhere, he notes the presence of 'a most marked individualism tempered by perfect self-control and subject to a conscientious respect for the rights of others,' the distinctive trait of the national character.

His method of treatment appears very clearly in the first chapter of the historical discussion—and it is confessedly historical and not critical. He gives us in outline the general situation in matters social, educational and religious, and attempts, with some success, to relate the philosophical productions of the period to these.

Franklin as 'a type, an incarnation of the American spirit,' Jonathan Edwards as 'the greatest in philosophical speculation' and President Samuel Johnson as 'the most remarkable expositor of Berkleyanism outside of England,' are, of course, the central figures. The exposition of their views is clear and well proportioned.

Following the Colonial Period comes the period of 'the Scotch influence.' The religious influence in the colleges and the general demand for a 'sound' philosophy made way for a ready adoption of the Scottish philosophy introduced by Witherspoon. Its reign lasted till 1860 and it has retained much influence during the period of decline since that date.

As representatives of this general spirit rather than as members of the school, he mentions Wayland, Hickok, Porter and others. He admits that some of them were much influenced by other lines of thought, and that a few can hardly be included here with justice; still there is a likeness in the points of view of all these men. The great importance of Hickok and Porter is duly recognized.

The influence of the German philosophy, which came next in order, was introduced indirectly by way of the French eclectics on the one hand, and Coleridge, Carlyle and Wordsworth on the other, and directly by

Americans who had studied in Germany. This fell in with the intellectual revival in New England which found expression in Unitarianism, attempts at social reform and transcendentalism. Emerson, who had 'ideas and conceptions,' 'not a philosophy,' receives due consideration as the central figure in the transcendentalist movement.

Contemporary 'schools' are classed as idealistic. Lotze, Hegel and Green are pointed out as our favorite philosophers. Here it is possible to object that Father van Becelaere has perhaps underestimated the force of the realistic currents, though it is true that the names most widely known represent 'idealistic' tendencies. The present book is not altogether free from the fault, of most discussions having to do with 'idealism,' viz., vagueness in the use of the term. One is almost tempted to demand the banishment of a word that so often means half a dozen different things on as many different pages. It usually seems to stand, in a general way, for everything that is supposed to be good, whether in ethics, metaphysics, epistemology, esthetics or what not. This book sins perhaps less than most in this respect.

The survey of Logic at the end of this chapter might well include some reference to Aikins' recent book.

The chapter on the philosophy of evolution is good, though to class Schurman with Agassiz and Dawson as an opponent of evolution is misleading. The fact that Schurman would limit the application of evolution in ethics gives no warrant for calling him an opponent of evolution.

Ethics, biology, anthropology, sociology and religious literature find mention, while psychology has a chapter to itself.

One looks in vain for any discussion of the important work of Thorndike and others in comparative psychology; Titchener's volumes on experimental psychology and Santayana's work in esthetics should have been noted.

It is doubtful whether all our psychologists would agree that 'psychology has been placed on an experimental basis only in order to assure to speculative psychology a foundation and guarantee in the facts and the control of those facts.'

A review of the situation at present includes an outline of the work done in some of the universities and a discussion of the aims and character of the various societies and journals.

A number of minor errors occur which need not be discussed in detail. Indeed, most of the things here criticized are matters of secondary importance. The most important omissions are pointed out by Professor Royce in his introduction, viz., the 'Chicago School,' and C. S. Peirce and his school. The Yale school, too, he insists has not received the attention it deserves. But on the whole the book is well balanced and well proportioned; and, to call attention to another fact pointed out by Professor Royce, it is fair-minded and free from bias. It is a very valuable addition to the literature of philosophy in America.

ADAM LEROY JONES.

A Theory of Time-perception. W. P. MONTAGUE. *American Journal of Psychology*, Vol. XV., No. 1, pp. 1-13.

The author has formulated the problem of the 'specious present' in the question, 'How is it that at any one moment there can appear to be present several moments?' The author points out that there is a difference in the change-rate of the particular contents of consciousness and of the general state of consciousness, and that the amount of perceived time is measured by a finite differential ratio between these two changes.

Every psychosis may be considered as made up of two inseparable aspects, the objective and the subjective, the former being the content of consciousness which is the object of attention, the latter the whole system of conscious contents, including the incoming content. This incoming content is perceived as an object only as projected on a subjective background of pre-existing states. These two phases of a psychosis exhibit differing rates of change. A change in one conscious state is necessarily attended by a change in the system of states of which that one is about to form a part, but the change in this one state is greater than that in the system of states. The perception of a change undergoes modification less rapidly than the change that is perceived.

Now, although the time in which these changes take place and the changes themselves may be infinitely small, yet the ratio of the one to the other remains finite. This ratio may be represented by $\frac{do}{ds}$ o and s being respectively the objective and the subjective aspects of the psychosis. When this ratio is greater than unity, finite portions of time and change are perceived. When this ratio increases, *i. e.*, when $\frac{d^2o}{ds^2}$ is positive, the specious present seems to increase; when the ratio decreases and the second differential is negative, the specious present seems to decrease.

The value of these second differentials marks the perceived rate of time. Just as $\frac{s}{o}$ varies as $\frac{do}{ds}$ so do the first and second differentials vary inversely, and, the longer an event endures, the greater the value of $\frac{do}{ds}$ and the less the value of $\frac{d^2o}{ds^2}$ the rate of change. The further past an event is, the more slowly does it increase in pastness, a conformity of time-perception to Weber's law.

The rhythmic character of consciousness results from the change in the specious present. The specious present tends to increase, but soon this tendency is counterbalanced by the inability to attend to a larger number of things; the degree to which each thing is attended is inversely proportional to the number of things. The time comes when we can not attend to the content if it is extended, and so a new present is built up about a new sensation as center.

True memory differs from this sort of immediate consciousness of the past, (1) because the remembered event is projected upon a subjective background very hazy and purely schematic; and (2) because the remem-

bered event is less noticeably projected upon the concrete background of the specious present in which the act of memory takes place. Familiarity is an experience of the present with a fringe of the past; memory is an experience of the past with a fringe of the present.

To meet a possible difficulty, the author considers the question: 'What subjective background has a single sensation which arises when one is aroused from a state of unconsciousness?' The background for such a sensation, after its origin, would be composed of the image-traces of the sensation itself. Before such a background has developed, the background must be composed of the physiological concomitants of the sensation. The symbol for the specious present, taken physiologically, may thus represent a condition just antecedent to perception. In this way we can understand how it is that the time-form of a psychosis arises simultaneously with its content.

A. L. T. GOULD.

YALE UNIVERSITY.

JOURNALS AND NEW BOOKS

REVUE DE PHILOSOPHIE. May, 1904. Pp. 519-642. *Un Caractère de la Philosophie Moderne: le 'Mathématisme'* (pp. 519-541): X. MOISANT.—The attitude of Spinoza and Leibniz, culminating in the present worship of mathematical symbolization in philosophy is like a group of barren rocks in an otherwise fertile soil. It is only materialism over again; it reduces spirit to body. *La Théorie Physique, son Objet, sa Structure* (2d Article) (pp. 542-556): P. DUHEM.—A physical theory represents a group of experimental laws as simply, completely, and exactly as possible; an economical classification. We have a natural faith that these theories have ontological validity; this is confirmed because they enable us to predict. *Sur la Matérialisme Scientifique (suite)* (pp. 557-567): P. VIGNON.—Phenomena of mimicry are explained by the very psychic factors (will) which M. Le Dantec calls epiphenomenal. Thus we recognize Cl. Bernard's 'directive idea.' What this really is remains to be determined (*à suivre*). *L'Abstraction Scolastique* (pp. 568-573): COMTE DE VORGES.—Reply to M. Bernies. The evidence for the intellectus agens lies in its necessity as a basis for thinking; of course it is not observable. Neither is the heart-beat, normally, yet being indispensable for life we believe in it. *Fénelon Métaphysicien (Oeuvres Inédits)* (pp. 574-597): E. GRISELLE.—This gives the text of Fénelon's remarks on the 'Nature of Man explained by simple notions of Being in general' at the end of his *Lettre sur le culte intérieur et extérieur (à suivre)*. *Analyses et Comptes Rendus*: Félix Thomas, Pierre Leroux: C. HUI. E. Lambert, *Fonction du Droit Civil Comparé*: CH. B. E. Fournière, *Les Théories Socialistes au XIX^e Siècle*. *De Babeuf à Proudhon*: E. BARON. N. Kostyleff, *Esquisse d'une Évolution dans l'Histoire de la Philosophie*: R. A. DUFF, *Spinoza's Political and Ethical Philosophy*: H. LÉARD. M. Salomon, *Collection des Grands Hommes de l'Eglise au XIX^e Siècle*: Mgr. Dupanloup: TH. G.

J. Lemaitre, *Théories et Impressions*: T. DE VISAN. J. Bourdeau, *Les Maîtres de la Pensée Contemporaine*: T. DE VISAN. Périodiques Français. Sommaire des Revues. Bulletin de l'Enseignement Philosophique: les Sensations Kinesthésiques. Chronique.

REVUE PHILOSOPHIQUE. No. 5, May, 1904. Pp. 449-568. *De la Verité: Remarques Logiques* (pp. 449-461): A. NAVILLE. - Truth is not agreement of thought with its object, for thought can not resemble matter or space. Truth for us, relative truth, is agreement of thought with normal representations. Sigwart's 'necessity' holds only for the normal. *La Perception de la Verticalité de la Tête et du Corps* (pp. 462-492): B. BOURDON. - Evidence is against a 'static sense' in the internal ear. Verticality or inclination of the head is revealed by eye-movements and sensations in the neck; of the body by sensations of the legs and haunches; of both, by skin and muscular sensations. *La Conception Générale de l'Association des Idées* (pp. 493-517): H. PIÉRON. - The Scotch theory and the stream theory are both inadequate. Associations are determined by the state of mind as a whole system. Two states once joined in any sort of system tend to recall each other. *Notes et Observations: de la Conscience des Agonisants* (pp. 518-521): N. VASCHIDE. - In the case of an epileptic, four minutes dead, a friend crying loudly in her ear caused the eyelids to quiver. Sufferers frequently show this reflex to auditory sensation. *Revue Critique: Vers le Positivisme Absolu par l'Idéalisme, de L. Weber* (pp. 522-539): L. BRUNSCHWIGG. - Weber's reduction of spatial realism to positivistic idealism is good, but he neglects to apply this to the categories of action and leaves open the road to moral realism. *Analyses et Comptes Rendus: Aikins, Principles of Logic*: A. LALANDE. Couturat, *Histoire de la Langue Universelle*: A. L. Roussel-Despierres, *L'Idéal Esthétique*: L. ARRÉAT. Lipps, *Asthetik. Psychologie des Schönen und der Kunst*: M. KREBS. Durkheim et collaborateurs, *L'Année Sociologique*: G. BELOT. Dody, *Le Critérium Sociologique de la Raison d'État*: J. DELVALE. Penjon, *L'Énigme Sociale*: H. DAUDIN. Payot, *Cours de Morale*: DELVALE. A. Bosco, *La Delinquenza in Vari State di Europa*: G. RICHARD. G. Trespioli, *Saggio per uno Studio della Coscienza Sociale e Giuridica nei Codici Religiosi*: RICHARD. V. Miceli, *Studi di Psicologia del Diritto*: RICHARD. N. Vaschide et von Buschan, *Index Philosophique. Revue des Périodiques Étrangers. Nécrologie. Livres Déposés*.

VIERTELJAHRSSCHRIFT FÜR WISSENSCHAFTLICHE PHILOSOPHIE UND SOZIOLOGIE. March, 1904, Band III., Heft 1. *Egoismus und Altruismus. Zur soziologischen Motivation des praktischen Wollens. Einleitender Teil* (pp. 3-22): D. GUSTL. - The origin of the two terms. Comte's treatment and Spencer's. Human actions can not be classified on so simple a basis. The error arises from adopting an historical, not a psychological account of motives. *Schopenhauer u. die wissenschaftliche Philosophie. I.* (pp. 23-71): C. v. BROCKDORFF. - Schopenhauer's theory of matter gave the first impetus to Ostwald's en-

ergetics. To his high valuation of the subjective element in consciousness psychology is much indebted. But his supposition that the sensible universe flies about in endless space is based not on logic but on pessimism. His account of causality, matter and force is utterly insufficient. The philosopher he considered an artist, concepts as his marble. *Über die Entwicklung des Begriffes der höheren arithmologischen Gesetzmässigkeit in Natur- u. Geisteswissenschaften* (pp. 73-92): W. G. ALEXEJEFF. — This development shows us that experiment gives us but the axioms of the facts. Further solutions of the subtler conformities of existence and sequence wait for the development of mathematics. *Critical Notices*, by W. P. SCHUMANN. W. Ament, *Die Entwicklung der Pflanzenkenntnis beim Kinde und bei Völkern*. K. Brankmann, *Die psychologische Entwicklung und Pädagogische Behandlung schwerhöriger Kinder*. W. Ament, *Begriff und Begriffe der Kindersprache*. P. Bergemann, *Lehrbuch der Pädagogischen Psychologie*. K. Kroiss, *Zur Methodik des Hörunterrichts*. E. F. W. Meumann, *Die Sprache des Kindes*. Havelock Ellis, *Das Geschlechtsgefühl*: GIESSLER. G. Ratzenhofer, *Positiv Ethik*: L. ROTH-DIAKOVAR. P. Sokolowski, *Die Philosophie im Privatrecht*: E. RABEL.

ANNALEN DER NATURPHILOSOPHIE. April, 1904. Band III., Heft 3. *Das Duale System der Harmonie* (pp. 241-269): A. v. OETTINGEN. — A systematic account of the chief terms employed in acoustics, with special emphasis on the distinction between tonicity and phonicity. *Über die Wechselseitigen Beziehungen der Bewegungsenergie und der Strahlenergie* (pp. 270-282): V. v. TURIN. — The results of the enquiry are summed up in ten theses, which include an approximate formula for the conversion of radial into kinetic energy. *Neue Ableitung der Gibbsschen Phasenregel* (pp. 283-293): F. WALD. — An attempt to show that the experimenter is included among the number of substances in Gibb's formulation of the law of phases. *Biologie und Chemie* (pp. 294-314): W. OSTWALD. — The most general advance exhibited in history is the conquest of spiritual realms, including that of art, by science. The enjoyment of art as a relief from the labors of science is an atavistic survival. The general trend of science has become synthetic. In the problem of coordination biology has a task which differentiates it from Chemistry. *Über den Zweck des Lebens* (pp. 315-323): P. J. MOBIUS. — Like everything interesting, the problem is a transcendent one. Existence is doubtless the chief aim, but it is not the whole. *Zur Geschichte tierischer Gesellschaften* (pp. 324-338): E. METSCHNIKOFF. — The connection prevailing among lower social animals between specialization in labor, and sexual power does not seem likely to prevail among men; nor is loss of individuality in other respects a corollary of social organization. *Critical notices*: W. O.-Felix Rosen, *Die Natur in der Kunst*. Th. Ribot, *Die Schöpferkraft der Phantasie* (L'imagination créatrice). M. Ettlinger, *Untersuchungen über die Bedeutung der Deszendenztheorie für die Psychologie*. R. Goldschied, *Zur Ethik des Gesamtwillens Erster Band*. L. Couturat et L. Leau, *Histoire de la langue universelle*. C. K. Schneider, *Vitalismus. Elementare Lebensfunktionen*.

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NOTES AND NEWS

WE reprint the following note from *Nature*: "The first German congress for experimental psychology was held in Giessen on April 18-21. About 130 persons accepted the invitation to attend the congress, including most of the prominent psychologists of Germany, besides physiologists, philosophers, alienists and teachers attached to various institutions, and about one hundred attended the sittings. Nearly fifty papers were read and discussed, and in order to get through this large programme the sittings were continued far into the evenings. There was an excellent exhibition of apparatus arranged by Doctor Sommer, the distinguished professor of psychiatry, who has done so much to apply the methods of experimental psychology to the investigation of mental diseases. Professor G. E. Müller, of Göttingen, so well known for his accurate investigations of the memory, presided over the sittings, and one of the most interesting features of the congress was his demonstration and exposition of a case of exceptionally good memory. The subject, who is an intelligent and well educated man, has, in addition to a remarkable memory, principally visual in type, a power of seizing very rapidly various arithmetical relations between groups of figures presented to him, and this combination of faculties enables him to excel all the achievements of Diamanti, Inaudi, and the other 'arithmetical prodigies' that have been investigated from time to time. It is proposed to institute a German association for experimental psychology for the organization of annual congresses and of cooperative research."

FOLLOWING the resignation of Professor Dewey from the headship of

the department of philosophy at the University of Chicago, to accept a chair of philosophy at Columbia University, a reorganization of the work at Chicago in philosophy and psychology will be made. The work in psychology will be organized under a distinct department, with Professor James R. Angell, professor of psychology, as head. Associated with him will be Doctor John B. Watson, as instructor, and courses in comparative psychology will also be offered by Professor Mead and in the psychology of religion by Doctor Ames, both of the department of philosophy. Professor James H. Tufts will be head of the department of philosophy, and Assistant Professor A. W. Moore has been promoted to an associate professorship in the department. Associate Professor Mead and Doctor Ames will continue with the department. Courses in Greek philosophy will be given by Professor Shorey, of the Greek department. The organization of the work in education, which has hitherto been connected with the department of philosophy, has not yet been fully determined upon.

THE Northwestern branch of the American Psychological Association held its semi-annual meeting at the University of Chicago, Saturday, May 7, with Professor A. W. Moore in the chair. The following papers were read: 'Image or Sensation?' by W. C. Gore; 'Report on Recent Neurological Work,' by H. H. Donaldson; 'An Illustration of Psychology as Metaphysical Method,' by S. F. MacLennan; 'Report of Experiments on the Relation between Sensations of Taste and Smell,' by Matilda Castro. After the reading and discussion of the papers the Association adjourned to the Quadrangle Club for dinner. Professors Scott, Tufts and Tawney were elected a Committee in Charge of the next meeting, which is to be held at Northwestern University, on the Saturday following Thanksgiving.

At a congregation of the University of Cambridge, England, on April 29, the report of the General Board of Studies recommending that the benefaction offered by Doctor Stanton, Ely Professor of Divinity, for the endowment of a lectureship in the philosophy of religion be gratefully accepted by the Senate, and that the vice-chancellor be authorized to express to Doctor Stanton the thanks of the University for his gift, was approved. Also the regulations for the appointment of a University lecturer in the philosophy of religion were adopted.

PROFESSOR WILLIAM TURNER, of St. Paul Seminary, St. Paul, Minnesota, has been granted a year's leave of absence which he intends to spend in Europe for the purpose of securing material for a study of the beginnings of scholasticism.

PROFESSOR WILHELM HISS, professor of anatomy at Leipzig, died on May 1, at the age of seventy-two years.

It is announced that Professor George Trumbull Ladd has resigned his chair of philosophy at Yale University.

THE JOURNAL OF PHILOSOPHY

PSYCHOLOGY AND SCIENTIFIC METHODS

UTILITARIAN EPISTEMOLOGY

KANT represents knowledge, feeling and will as separate functions of spirit and the method did not originate with him. It is a feature of a large part of pre-Kantian epistemology. In post-Kantian literature, Beneke and Herbart treat feeling and will as functions of ideas; Schopenhauer regards will as the mental ultimate, and Spencer considers both thought and will reducible to 'feelings and relations between feelings.' Recent psychologists find nothing in the motor consciousness which does not fall to the categories of either thought or feeling, and they raise the question as to the relations of thought and feeling to each other. The logical possibilities are that thought determines feeling, that feeling determines thought, that they mutually influence each other, and that both are determined by something which transcends both. The view that varieties of feeling are due to their cognized objects is the more common one, but it is not our purpose to discuss it here. The second view, that thought depends upon feeling, may take different forms. We may consider knowledge to be the instrument of either practical, esthetic or theoretic needs—may consider it as the instrument of any one or two or all of these. We shall discuss the view that knowledge is a means to the satisfaction of purely practical needs, or what may be called utilitarian epistemology.

I.

Conceptions, according to this theory of knowledge, are simply the meanings which groups of things acquire in our feeling-lives, and truth is that conception or system of conceptions which contributes most to the satisfaction of our practical needs. Conceptions are purely teleological instruments whose value depends upon their consequences when they are allowed to determine our actions. To the grocer, sugar is an article of merchandise, and the success of his business depends upon his adequately conceiving it so. To the housekeeper, sugar is a white, vegetable compound possessing cer-

tain values as food and very sweet to the taste. And so with others; each according to his practical needs conceives the sugar. Hence it follows that every conception of an object must be unjust to every other; knowledge is of such a nature that we must apprehend things by aspects and pieces; and knowledge is most unjust to things themselves. Objects are infinitely richer than knowledge. Moreover, our conceptions of objects are false in the emphasis which they lay now on one aspect and now on another according to our shifting practical interests. No attribute is really essential to any one thing, and on the other hand, each attribute seems essential when it suits our needs to regard it so. Consequently, the true and valid conception of a thing is always that aspect of it which has most significance for us at the time and in the light of our transient need. One conception could be truer than another only in case one of our needs were truer than another; that is, only in case some one of our needs conforms more to an absolute standard to which our needs ought to conform. Such an absolute standard, however, could be known only so far as it suits some one interest of ours to so conceive the universe; such a conception could be more valid than any other only in case some second standard existed to make it so; and so on, *ad infinitum*. No, the only criteria of truth are subjective—feelings of satisfaction, freedom from tension and uneasiness. That is to say, we recognize the truth by our assurance and confidence that we are comfortable and that our needs are satisfied.

This theory of knowledge (to restate it somewhat differently) begins with a pluralistic view of man's needs and natures. Our practical nature is distinct from our esthetic and logical natures, the practical being more important than the other two and each comprehending a world of needs. Needs and natures are ultimate so far as consciousness is concerned, and consequently we would more properly speak of knowledges than of knowledge, there being as many true knowledges of any object as there are needs to be met by it. Any view of things is true which arises in response to a need to which it tends to bring satisfaction as a means. Moreover, our needs are not here represented as correlated. One conception would be truer than another only if one of our purposes were truer than another; but we do not know that any one maintains that one purpose is truer than another. In some discussions our practical and esthetic natures seem to be represented as determining knowledge, while in others the practical nature alone is final. The latter is the dominant note in the view we are here interested in discussing. Utility is here the basis of knowledge.

Theoretic interest in the unity of knowledge is not practical, but its relation to practical issues is derivative. The unified view

of things is important only so far as the world is a unit; and the world is not, in any absolute sense, a unit, but a manifold. Utilitarian epistemology does not, however, discuss the question as to the relative simplicity or complexity of the world. Its world is practical, a world of action and reaction, and this purely practical world is plural.

As our knowledges are determined now by one interest and now by another, any knowledge must be unjust to those aspects of its object which satisfy other needs; and this injustice and partiality make the traditional dignity of knowledge and the authority of reason seem ridiculous indeed. Truth is that view of things which satisfies practical need at any moment and this reminds one of the ancient doctrine, 'man is the measure of all things.'

Herein we have illustrated, then, several features of utilitarian epistemology—the manifoldness of man's needs and natures, the supreme importance of the practical, the necessary injustice of knowledge to its object due to its always being a tool in the satisfaction of a particular need, a purely subjective criterion of truth, and a practical or pluralistic view of reality.

II.

The writer feels sure that the above representation is neither just nor fair to any particular philosopher and that no one would recognize his own theory of knowledge in it. These doctrinal statements are intended, we repeat, only to illustrate the subject of this paper. Any one who takes the view that knowledge is a mere tool to the satisfaction of practical needs seems to be committed to the other features of the above analysis; these doctrines may be said to indicate a way of looking at knowledge. Probably all of these dicta can be found in some of the many books and essays which have recently been written on this interesting subject, but the doctrines above mentioned do not profess to be the statement of anybody's theory of knowledge. Utilitarian epistemology exists in so far as it exists at all only as a tendency of pragmatism.

Let us in the next place notice the doctrines mentioned, beginning with the first. Nearly everyone admits, to-day, that human needs and the objective world are very closely connected in knowledge; but the reflective individual is not giving himself now in one direction and now in another, moved by passions which have nothing in common. He craves before all things and through all things an unconditioned and continuous experience. It is more in accord with the experience of all to say that the reflective individual craves and seeks only reflective experience than to say he has a whole catalogue of separate and discordant needs. The instinctive and im-

pulsive wants of childhood are, by participation in the activities of society and by growth into the reflective consciousness of society, so transformed that there ceases to be a mere manifold of warring dispositions and tendencies. To the writer the continuity of reflective experience seems to be the one great demand of psychic life. The longing for a complete and self-contained experience, needing other persons and an objective world as conditions of its own self-realization, is the passion of human passions. The many instincts and impulses with which human nature is endowed come to be simply so many forms of self-seeking. Of course the individual man does not always consciously seek for the thing which he ultimately and supremely needs. A dumb mysticism, however, pleads for the Absolute, for a completely self-centered and self-sufficient experience; and no particular attainment satisfies because our grasp is only finite.

Reflective need comprehends theoretic and esthetic as well as practical need. A completely satisfying experience must leave no real passion unsatisfied. It is true that discrimination and conception are the handmaids of action but it is also true that action leads to new discrimination and conception. In the development of mind motor processes are continually contributing to knowledge and are sought for that purpose among others. But actions terminate with the particular while the heart craves the permanent and the universal. Only unreflective instinct and impulse can be satisfied by single actions, and the reflective yearning for a consistent experience, we repeat, is as much theoretic and esthetic as it is practical. Neither of these motives without the others is anything but an abstraction; neither could exist without the others. The satisfaction of the one leads to the satisfaction of the others also.

Consequently the purely subjective (that is, transient and private) criterion of truth is open to criticism. That truth is a satisfaction there can be no doubt; but the marks of cognitive, that is, objective validity are to be sought among the objects of knowledge and are never purely formal. If the criteria of truth were purely subjective we should have no ground for asserting their objective validity. Scepticism is both the historical and logical result of the subjective criterion of truth. Hume was right in holding to this outcome of the Lockean presuppositions as to this point. A reflective being is never satisfied that he possesses truth merely because he is at rest: he asks, with an eye to *all* experience, *Ought* I be satisfied with my idea? He judges, not only *Ich glaube*, but also *Man glaubt*; not only *Es gefehlt mir*, but also *Es ist schoen*. He exercises a critical oversight over his needs as well as over the conceptions which serve

as means to their satisfaction. Truth is one aspect of an ideal by which we judge our motives as well as their objects.

Consequently the reflective finite mind suspects that there is more to the object than any and all of its ideas contain. What an object ultimately is always transcends the 'that' of present knowledge, and indeed of all human knowledge; but this is simply saying that reality is ideal, that finite knowledge always has a prospective reference, and that an object is always the possibility of further experience and knowledge. What are those elements of nature which continually escape the powers of conception? Locke postulated a world of external substances which impress the mind and give it simple ideas; but when asked by the Bishop of Worcester what these external substances might be and why he asserts their being, Locke replied in such a way as to leave the bishop convinced that from Locke's point of view there are no such substances except in our ideas. The question is, Are there aspects of real things existing in the real world apart from our ideas? That the prospective object should transcend the retrospective object is a part of the idea which we have of the object. But this transcending prospective object is nothing apart from the retrospective. Both are necessary to the object. It is not things that human knowledge fails to do justice to, but that unconditioned experience of things which would exhaust and constitute them; and this failure is simply the relativity and finitude of human experience. If there is a deeper sense in which the real demanded by finite ideas is identical with the demand itself, if the purpose of every idea is ultimately its own object, if the need of experience is at last the experience of need, then this dualism of empirical attributes and underlying substratum must ultimately yield to the view that experience is reality. The selective function which constitutes the apparent partiality and injustice of knowledge is the one condition under which things can exist in finite experience. Reality is richer than finite conceptions because finite conceptions contain less than their own demand; but to separate finite conceptions from their demand and then treat the former as a mediation between the demand and its object is to ignore the fact that the demand, the prospective reference of experience, is essential to object and idea alike.

The practical world is plural; and if the utilitarian theory of knowledge as we have outlined it here were true, pluralistic ontology would need no further justification. The practical value of the theoretic impulse depends upon how much simplicity and sameness actually exist in nature. If the law of simplicity is not the law of nature, knowledge is neither possible nor desirable. Of course one can not refute pluralistic ontology in this way. To attempt to do

so would be as much a *petitio principii* as to attempt to disprove scepticism of the absolute type. Proof assumes, to start with, what pluralistic ontology, to start with, denies, namely, the unity of the object of knowledge. But even from a practical point of view, it is impossible to see how habit and accommodation would be possible in an indefinitely manifold world.

III.

The case of utilitarian epistemology is sometimes put strongly from the biological point of view. Doubtless the dominance of biological analogies in present thought has had much to do with this modern form of pragmatism; the doctrine of evolution is sometimes explicitly appealed to as proof. All life is a process of adjustment going on under a heavy pressure of necessity. Life is a growing complexity, an increasing manifoldness of needs, an ever-extending range and variety of stimulation and reaction. The evolution of life can not proceed far without simplification. Economy demands that many objects be treated in one way, that habits and classification be formed. Give an individual the complex organism of man, enlarge his life medium so as to include the entire world and remote stars and his own kind, disturb his unstable equilibrium by a running fire of stimuli so varied and incessant that his life becomes a continual readjustment to its conditions (that is, its needs), and you create the necessity for knowledge. Whatever else it is, knowledge is a practical necessity. A time comes when finer, completer and more spontaneous adjustments to the conditions of life are necessary than the rough methods of organic habit and accommodation achieve. Conscious discrimination, classification and judgment become necessary. Moreover, the individual must comprehend and classify himself. He must learn his own place in nature, in the world as a whole, and in history. The whole social consciousness is a practical necessity; and with the social consciousness come complex notions of the internal and external worlds, of moral good and evil, of the world beautiful and of the world as a whole. Social consciousness is the key-stone of the arch of knowledge in the reflective sense of the term. Could there be a completer analytical justification of utilitarian epistemology?

Before discussing the biological proof of utilitarian epistemology, we should separate the latter doctrine from pragmatic methodology. Some of those usually counted among the pragmatists, notably Professor Dewey, use the term of a *method* of taking up and handling the problems of knowledge and reality, while others apply it to a system of tenets with reference to knowledge and reality. As a method pragmatism is an attempt to assimilate certain new and

important biological conceptions of life to certain very old laws of the mind. That new light is thrown on these laws by the process was to be expected; and there is surely no fallacy in the process, even granting that the laws of thought come to have a certain biological flavor as a result. But utilitarian epistemology and pragmatic metaphysics are different stories. To say that all knowledge is relative to the knower's needs, and then to say that this is true because it is in accord with the doctrine of evolution, is one of two things, viz., it is either a circle in proof (in case evolution in turn is given a pragmatic basis), or something which is not pragmatism at all.

Moreover, it would not in any case follow from the biological argument that knowledge is simply a tool for the satisfaction of practical needs, because the life to be sustained is mental life. The conditions of mental life are not determined by an environment that is foreign to the mind, as the atmosphere and the soil are foreign to a plant; the conditions of mental life are determined by the mind itself. The life of knowledge processes is always mental, and knowledge is the handmaid only of knowledge. No occult practical necessity dictates terms of existence to the mind. The utilitarian view of knowledge seems strangely *non apropos* when we adopt the view-point of the knowledge processes themselves. The end to which an idea contributes is an end the determination of which is a part of the idea itself.

Three moments are characteristic of experience: it always covers a fact or facts, some meaning or value belonging to the facts, and a need for which both facts and meaning exist. The conative factor underlies both facts and their values. It is the unity and continuity of needs and purposes which give to the objects of experience their relations of contiguity and their permanence. Moreover, a close relation exists between our needs and the external world, that is, between our needs and the conditions of life to which the individual must continually readjust himself. The laws of matter and of life are the laws of our needs.

The strength of the agnostic position lies in a representational theory of knowledge according to which the facts of experience and our interpretations of them are separate and distinct from reality. Reality is of course unknowable from this point of view, but difficulties arise from this theory of knowledge when the problem of accounting for our knowledge of the existence of a reality which transcends experience is raised. If, on the other hand, we confine knowledge to meanings and evaluations, and regard sensational facts as illusory, we reach a theory of either agnosticism or rationalism according as we assert the correspondence of meaning to reality

or not, and in either case knowledge and reality fall apart. Truth from this point of view is the correspondence of thought with reality; and the existence of such a correspondence becomes an inexplicable miracle and contradiction. If knowledge be considered a matter of conation alone, reality becomes immediacy and mysticism follows. But experience is in fact all three of these moments in the unity of reflection. Facts, meanings and needs are abstractions from concrete experience. Neither is, in finite experience, changeless; they develop together by a law of their own activity, and together realize self-determined procedure as the highest outcome of their growth. Utilitarian epistemology does not sufficiently emphasize or recognize this reflective phase of experience.

G. A. TAWNEY.

BELOIT COLLEGE, WISCONSIN.

THE NEED OF A LOGIC OF CONDUCT

THAT there is a distinct dissatisfaction on all hands with the present state of ethics is shown unmistakably by the many proposals of a new way in the science which have been offered of late in the reviews and during the past few years in well-known treatises. There seems to be a general feeling that ethics as a reputable philosophic discipline is upon its trial and each succeeding month of late has brought its suggestion toward some promise of reform. The present discussion concurs in much of the prevailing anxiety and discontent but offers a suggestion toward the improvement of the science somewhat less apologetic, though by no means more conservative, than many which have been advanced. This suggestion is, in a word, that ethics shall cease from the attempt it has so long been making to define an ultimate ideal of character and conduct and turn its energies to the task of developing a logical method of determining concrete courses of conduct under concrete known conditions. There is need in ethics of the same kind of development as has come in the theory of logic through the abandonment of preconceptions and ideals akin to the rationalistic metaphysics of the seventeenth century. Such a development properly conducted would, however, as I shall try to show, be only the legitimate and proper outgrowth of the most promising theory of an ideal that the history of ethics has had to trace through various forms from ancient times down to our own. Just as Kant's renunciation of dogmatism was in reality no revolution, but only a step toward the better establishment of the same method of knowledge that Descartes and his followers had begun to understand but had

distorted and disguised in the language of scholastic metaphysics, so any proposal of a logic of conduct must connect itself directly with the practical needs and motives expressed in the long-standing demand for a metaphysical 'first principle' or ideal in ethics.

I shall assume, without argument, that the ethics of self-realization and utilitarianism have on the whole until recent years rightfully had the field of controversy to themselves, there being no rival able to dispute them. On the whole, however, the theory of self-realization seems, as against its rival, in the end to have made good its case—a conclusion which Professor Sidgwick's recently published lectures do not go far to qualify, being, as I think, much more convincing and suggestive in their counter-attack at certain vital points than in defense of the principle and method of utilitarianism.¹ I shall assume that self-realization in the articulate and classic form which it has found in modern times in Green's 'Prolegomena' supplies on the whole a more satisfactory account of moral motivation and the sense of obligation than is offered by any form of hedonism. Now, as is well known, Green labors further, in the fourth book of his treatise, to define and illustrate the *practical utility* of his doctrine, contending that utilitarianism has been able to make a show of fulfilling Bentham's claims for it in this respect only through a surreptitious use, in every practical emergency in which the disciples of the doctrine took a stand, of an ideal personality. Be this contention as it may, we may be thankful that Green was thus put, by controversial necessity, to the task of justifying his doctrine by its promised fruits. These later chapters, of course, do not furnish the real grounds of Green's own belief in his principle. They give one the impression of being a defence which he felt to be indispensable, not a part of the exposition in which he had a spontaneous interest, and one wonders whether, but for this necessity, they would have been written. And yet, as I believe, the doctrine of self-realization, whether in its ancient forms or in its many more articulate statements at the hands of modern writers, is essentially, metaphysics and all, a doctrine of ethical method and owes to this essential import, hardly less seriously misunderstood by Green than by Plato himself, the interest and value which attach to it. I wish, therefore, to consider, in their methodological function as explained by Green, (1) his theory of the Absolute Self as moral ideal and (2) his interpretation of the individual moral life and of history as containing, for their essential meaning, a progressive revelation and realization of the perfection of the Absolute Self. I shall try briefly to indicate certain reasons for believing these conceptions wholly inadequate, in the form in which Green under-

¹ 'Lectures on the Ethics of T. H. Green, Herbert Spencer and J. Martineau.'

stands them, for their methodological use. This conclusion will argue the final impossibility of an ethics of the ideal and the desirability of making an endeavor in the direction above proposed.

1. What then is the practical value of the Absolute Self as moral ideal? Green's answer is in substance that it assures a due attention, on the part of one who knows his duty, to the nature of the motives which prompt him to do it—for, without the conscientious judgment on the agent's part that his motives are consistent with the ideal of personal perfection of character his act can not be truly moral, however beneficial it may be to all concerned.² That an act done with a wrong or hypocritical motive can be as good, even in the objective sense, *i. e.*, judged by its consequences alone, as if the motive had been pure Green is indeed careful to deny, but it is, nevertheless, not on this account that he claims for 'the temper of genuine self-abasement in the presence of an ideal of holiness' an intrinsic value. It has such a value independently of 'any that it might possess as a means to a good other than itself.' Further to secure to the ideal a jurisdiction exempt from all danger of encroachment by any material principle of judgment, Green then enunciates the paradox of 'a human life purged of vices and with no wrongs left to set right'—a life in which 'the question of the reformer, What ought to be done in the way of overt action that is not being done? would no longer be significant,' but in which still 'the contrast must remain for the human soul between itself and the infinite spirit.'³ More than this one could hardly do for any theory, however dear to one's heart.

Plainly, the problem here at issue is that of the distinction of motive and intention in ethical psychology. Upon our interpretation of this must depend our interpretation of the Absolute Self as an ethical conception. I wish accordingly to maintain that the distinction is not intrinsic and ultimate, but functional. A 'motive' is merely an hitherto 'subconscious' element in an intention (1) already operative or (2) still in process of development upon which attention has come to be centered. In either case the 'motive' has the characteristic emotional quality of immediate relation to or identity with the self and mediates a consciousness of self as set over against the intention hitherto entertained. Thus, to question the rectitude of one's 'motives' in any given case is, in effect, to question whether one's controlling intention is really what it has hitherto been supposed to be and the ideal of a perfectly realized self should thus be interpreted not as a contentual ideal for use as a criterion but as a symbol for the *logical process* of reflection upon intentions and as having for its

² 'Prolegomena to Ethics,' § 294.

³ § 302.

function the stimulation of a more critical and impartial conduct of this logical process. That this is really Green's meaning will, I think, appear from a careful reading of the chapter.⁴ Green holds back from the explicit statement, however, venturing only to concede that the conscientious attitude is one of readiness to turn to account 'the products of intellectual enlightenment and scientific discovery *as they come*,' of openness of mind, of being '*on the lookout*' for instruction, of readiness '*as soon as it comes*, to interpret the instruction into a personal duty.'⁵ But psychology knows nothing of such an attitude of sheer expectancy.

2. Whether the moral ideal 'will lead to a man's making any original contribution to the perfecting of life will depend on his special gifts and circumstances' and 'the margin,' Green assures us, 'within which *bona fide* perplexities of conscience can arise in a Christian society is not really very large.'⁶ The precise method whereby such contribution may be made by one 'possessed' by the ideal of self-realization and possessing the true theory of its meaning and its mode of operation in human life Green nowhere describes and he indicates its general nature only in a very vacillating and indefinite way in detached passages. Thus the moral man desires to further the arts, to maintain and, so far as he can, improve the institutions and rules of life 'in which the human spirit has so far incompletely realized its idea of a possible Best.'⁷ But how shall one proceed in particular cases? And Green has apparently three inconsistent answers: (1) 'By the help of mere honest reflection on the evidence of its true vocation which the human spirit has so far yielded in arts and sciences, in moral and political achievement' to act conformably to the standards of 'the recognized excellences and virtues';⁸ (2) considering the 'exercise of the recognized virtues and excellences, as resting upon a self-devoted will or will to be perfect . . . to be an end in itself,' to act conformably to their 'principle and essence';⁹ (3) to follow the "'counsel of perfection' . . . which *reference to such claims* [as those of conventional morality] *does not supply* and has to be derived from reference to a theory of ultimate good"—a theory which affords a 'really available criterion for estimating those *further claims* . . . *which are not enforced by the sanction of conventional morality*,' a 'theory of ultimate good as a perfection of the human spirit resting on the will to be per-

⁴ Especially §§ 298, 305.

⁵ §§ 306 *ad fin.*, 307. Italics mine. The whole passage is interesting.

⁶ §§ 176, 313.

⁷ § 352.

⁸ § 354.

⁹ § 380 *ad fin.* Cf. also § 363.

fect. . . .¹⁰ Passing over the first of these as merely intending what is better expressed in the second, we press Green in vain for a definite and consistent answer to the question whether in a doubtful case the moral ideal can supply a concrete 'counsel of perfection' *not* enforced by the sanction of conventional morality or whether for concrete guidance into details a resort must be had to the spirit or principle or essence of this same conventional morality.

There can of course be no doubt that the latter is on the whole Green's real meaning—that the ideal gives us no detailed direction but only enables us somehow to discern and partially trace out its lineaments in history and in present social institutions and in our past moral conduct.¹¹ I hope now to show that this conception is really unintelligible from the logical point of view. The essential problem which it raises is how a contentual ideal or blank form of perfection, not yet defined except in the 'meaning' of history and in the 'spirit' of one's own past moral conduct, can yet enable us to advance *beyond* these in cases of real perplexity. Here, again, we find Green vacillating. The value of a true moral theory 'must in any case,' he feels himself constrained to admit, 'be *negative rather than positive*; rather in the way of deliverance from moral anarchy' and from despair of any possible solution or as a safeguard against self-sophistication 'than in the way of pointing out duties previously ignored. This latter service must always be rendered by the application of a mind, which the ideal possesses, to new situations, to experience newly acquired or newly analyzed, rather than by reflection on any theory of the ideal.'¹² And yet, on the other hand, all the cases that Green brings forward in illustration of the 'practical value of a true moral theory' are (inevitably, of course) cases in which it is precisely 'this latter service' that is needed and, as we are assured, is actually rendered by that moral theory. How, indeed, could one be delivered from moral anarchy or from self-sophistication by any thing short of a positive indication, however faint and uncertain, of some concrete duty in the case? But whence, on Green's account, can such a positive novel indication come? Not, it would seem, from the ideal, because the ideal, though indeed contentual, has no actual content except such as has already been gath-

¹⁰ § 382. Italics mine. Cf. also § 375. The second of these answers corresponds to Green's recognition of perplexity of conscience as a genuine empirical fact; the third to his doctrine that ultimately 'there is no such thing really as a conflict of duties' (§ 324). These are reconcilable only if by the latter we understand the truism that when one has reached a decision he is no longer undecided.

¹¹ Cf. especially §§ 171-179, 321-328.

¹² § 311. Italics mine. Cf. §§ 306-307 as referred to above and § 372, sentence next to last.

ered into it from a scrutiny of its past workings in experience. Not from the results of this scrutiny, because these at best can indicate only 'the path in which human progress has *so far* been made'¹³ and not a particular deviation or commencement of a reversal. Instead of seeing once for all the impossibility of either answer Green allows himself to be driven from one to the other by turns, quite evidently uneasy all the while in the suspicion that he is not coming any nearer to a stable logical footing. The essence of the matter lies in Green's conception of interpretation of the past as a process of extracting from it a certain fixed deposit of ultimate meaning already incorporated or imbedded in it. To extract this meaning one must first discern it and for this there is need of a descriptive criterion or ideal by which to recognize it. But having such an ideal already, what need has one for history, for how on such an assumption can history further instruct one? And again, whence can the ideal obtain concrete detail but from the record of its workings in the past? But if it have no other content how can it move us to advance beyond the past?¹⁴

These two essential parts of the self-realization theory taken as a doctrine of method are found in one form or another in the various simplified versions that have appeared since the publication of Green's book.¹⁵ I have wished to show by this review of Green's account of them—an account rendered peculiarly fit for such a purpose by the evident painstaking care which was expended upon it—that they furnish no adequate foundation for an ethical method. The ideal of self-realization must give place in ethical theory to an interpretation of the concept of self not as an ideal entering into the reflective process as a determining or even a guiding factor but as a logical symbol signalizing to the agent the commencement of the reflective process of adjustment between concrete ends and prompting its orderly conduct and completion. And at this point, in place of a fallacious and hence dangerous resort to history in quest of its supposed essential spirit and meaning should come a methodical procedure based upon a genuine logic of historical in-

¹³ § 176 *ad fin.* Italics mine.

¹⁴ Obviously the difficulty can be only hidden, not avoided, by the curious psychological hypothesis of a perfect motive that is not intention but yet must express itself in intentions—of a 'conscientious' self that does not actively seek enlightenment as to consequences but avails itself of knowledge only when it is supplied by 'analysts and experimenters to whom the ideal of virtue is of little apparent concern' (§ 307).

¹⁵ Most recently in Professor Palmer's 'The Nature of Goodness,' especially Chap. V. in which the doctrine is identified with Aristotle's ethics, read in their metaphysical sense (Sect. VI.).

vestigation.¹⁶ In this way the two sides of the self-realization theory may be brought together, for the reflective process which the concept of self properly stimulates and controls must issue in a reconstruction of the past in continuity with an immediate concrete intention. It may be seriously questioned whether the modern historian conceives it to be desirable or possible to attain and present a photographic view of his chosen period in the past either precisely as it appeared to the main actors and their contemporaries or in its true 'metaphysical' perspective as it appeared to the Absolute Self. On the contrary, history must apparently be written afresh for each succeeding age with new selective emphasis and perspective and new principles of correlation and classification expressive of the dominant interests and characteristic problems of the age in question. The modern tendency toward the institutional and economic points of view in history may be mentioned in this connection.

It has been my purpose in this paper to suggest an abandonment of the endeavor to define an ethical ideal and the development of a practical logic of conduct which shall constitute the substance of ethical theory. In this way ethics may retain its proper and traditional normative character and avoid the mistaken course, so strenuously urged of late, of becoming a mere natural history of actual moral judgments. At another time I shall hope to present some positive suggestions toward such a logic of conduct as I have tried to show the need of and to defend the possibility of such a logic against certain obvious objections.

HENRY W. STUART.

UNIVERSITY OF IOWA.

DISCUSSION

PROFESSOR WARD'S PHILOSOPHY OF SCIENCE

IN a recent number of this JOURNAL (Vol. I., No. 10) Professor Creighton urges certain considerations against my interpretation of Ward's 'Naturalism and Agnosticism.' In my original article ('Recent Philosophical Procedure with Reference to Science,' Vol. I., No. 7, of this JOURNAL) I cited this book as a case of unsound philosophical criticism of science, contending that it sought to refute science in detail, and that it was conceived in a hostile and negative

¹⁶ For some very suggestive and pointed criticisms of the deductive logic of history implied in the self-realization ethics see the addresses on 'The Basis of Morality' and 'Philosophy and the Social Problem' (pp. 82-85), in Adamson's 'The Development of Modern Philosophy, with other Lectures and Essays,' Vol. II.

spirit. Professor Creighton points out that Professor Ward does not aim to refute science, but naturalism, or science given a dogmatic and metaphysical form. In the last number of the JOURNAL, Professor Ward makes substantially the same statement in his own behalf. The question of the author's intention is of course beyond dispute. He has undoubtedly been concerned primarily with 'a form of philosophy,' and not with science. It is equally indubitable, however, that he has sought to overthrow naturalism by a certain interpretation of natural science. And in spite of my general sympathy with refutations of naturalism, I claim that this interpretation is a case of bad philosophical procedure with reference to science. Since I seem not to have justified this thesis, nor even to have made it plain, I am very glad of this opportunity to submit a brief outline of the case.

1. I contend that Professor Ward *injects philosophy into the field of natural science*. By this I mean that his philosophy takes sides within the realm of the problems of natural science. This appears clearly in the cases of biology and psychology. In these fields he announces himself as in favor of what he calls the 'levelling-up' method, or the method which applies to 'lower' or simpler stages of life, the categories peculiarly characteristic of the 'higher' or more complex.¹ Such a method means the introduction of teleology into biology, and of spiritual activity into psychology. One is allowed to presume that teleology 'levelled up,' is spiritual activity. But there is no apparent reason why the inorganic world should not also be levelled up. Its processes are as hollow and unreal without activity, as the sensationalistic psychologist's elementary states of consciousness. And if the ultimate metaphysical category is to be counted in favor of a special working conception in a particular field of science, we have relapsed into the intrusive method of Hegel and Schelling, a method that I had thought to be long since discredited. We are not asked to give an idealistic interpretation to nature as a whole, but to use the hypothesis of immanent mind where the problem of life is at present baffling. Similarly in psychology we need the conception of activity for the solution of outstanding problems, since 'presentationism is adequate to (say) nine tenths of the facts, or better, perhaps, to nine tenths of each fact.'² Professor Ward is, of course, entitled to speak as an expert in psychology, and the fact that he does not stand alone in subsuming a philosophy of the self under the head of psychology, testifies to the present methodological cross-purposiveness of that science. But even he can not deny that such psychology as is founded upon the postulate of psycho-physical

¹ 'Naturalism and Agnosticism,' Lecture X.

² 'Modern Psychology,' *Mind*, N. S., II., p. 80.

parallelism, is developing a body of truth homogeneous with the natural sciences, and capable of a similar and approximately exact formulation. Nor can one fairly deny that in physiology teleology is regarded with distrust even by those who do not exclude it, retaining it as a symbol of residual obscurity. All this has nothing to do with the sufficiency of mechanical or quantitative categories in any department of reality, but it does mean that the body of truth of which mathematics, mechanics and physics are the foundation must be regarded as a whole that tends to comprehend all of nature in its own manner, and to become unitary and systematic in its own terms. An idealism that attempts to stand in the way of the development of this body of truth, and to deny such categories as it evolves in its own growth and defines in its own use, misconceives the function of philosophy and endangers its honor.

2. But I find another and a more radical defect in this book: *instead of a rational apperception of science, it offers us a demonstration of its ineptness.* I shall make only a passing reference to the fact that it is largely a charge of inconsistency urged against individuals, and inspired with an over-fondness for their foibles. This feature is prejudicial to the book's weight, and prevents concentration upon topics. But it is a far more serious matter to have *attached the predicate of unreality to the conceptual objects of science.* I submit some of the author's formulations of the conclusion of his critical examination of the mechanical theory. "If the conception of mechanism enables us to summarize details that would otherwise bewilder us, this can not possibly nullify our independence. . . ."³ "Such conceptions may furnish an admirable descriptive scheme of 'the motions that occur in nature,' but they explain nothing."⁴ "In short, we may take it as definitely conceded by the physicists themselves that descriptive hypothesis takes the place of real theory."⁵ "But the simple atom or center of force of Boscovich, and the primitive fluid of Lord Kelvin, are not *veræ causæ*: we must not call them fetishes, but they are assuredly fictions."⁶ Professor Ward also quotes approvingly Pearson's well-known characterization of science as 'conceptual shorthand.'⁷ The justification of these statements is to be found in the refinement which such conceptions as those of matter, mass, force and energy have undergone in the course of the history of science. These terms now connote that which they mean in the calculations and formulas of

³ 'Naturalism and Agnosticism,' II., p. 251.

⁴ *Ibid.*, II., pp. 88-89.

⁵ *Ibid.*, II., p. 73.

⁶ *Ibid.*, I., p. 143. Cf. also pp. 144, 145.

⁷ *Ibid.*, I., p. 83.

science, and are no longer charged with the vague ontological predicates of common sense. So far Professor Ward's exposition is unexceptionable, and in its historical presentation of the topic highly instructive. But I am utterly unable to see the reasonableness of holding that science has lost its hold upon reality by becoming more exact. I should suppose the term 'fiction' to be much more applicable to vague and undefined conceptions such as *power* and *substratum*, and that science had gained steadily in truth in so far as it has gained in precision and simplicity. It appears that to Professor Ward's mind simplicity is not a logical criterion, but a subjective interest. Short of the relegation to subjectivity of all logical ideals, unity and consistency among the rest, I see no grounds upon which such a presumption can be defended. To my mind there is no graver error current in our own day than that which attributes a caprice and transiency to the results of science because of the latter's ideal of descriptive economy. That ideal means nothing in any way distinguishable from such ideals of definiteness, system and cogency, as inform any enterprise of thought. And here, as in all thought, it is impossible to believe otherwise than that the result approached in the pursuit of such ideals, *is some truth about reality*. Professor Ward appears to believe otherwise. The progressive purification of physical conceptions is an 'advance towards what looks like physical nihilism.'⁸ "To suppose," he says, "that the rigorous determinism deducible from the abstract scheme—for the simple reason that it has been put into its fundamental premises—*must* apply also to the real world it has been devised to describe, is just as absurd as—to take a very trivial illustration—it would be to say that a man must fit his coat, and not that the coat must fit the man."⁹ Before I can understand such statements I must know how a coat can be *fitted* to a man without the man's fitting the coat, or how a scheme '*devised to describe*' the real world can fail to apply to it. I have no quarrel with such statements as that the realm of nature is not 'primary, independent, and complete in itself.'¹⁰ But such a claim, if true, should be substantiated by the discovery of other real realms, or a definition of the categories required to make nature concrete. Professor Ward has, of course, some such categories in mind. He speaks frequently of 'explanation,' 'efficiency' and 'activity,' as indispensable to cause and substance. The present descriptions of science have lost the latter because they have omitted the former.¹¹ Now it is commonly supposed that the new ideals of de-

⁸ *Ibid.*, I., p. 140.

⁹ *Ibid.*, II., pp. 67–68.

¹⁰ *Ibid.*, II., p. 247.

¹¹ *E. g.*, *ibid.*, I., p. 64; II., pp. 79, 237, 247.

scription, law and matter have thrown light upon the meaning of explanation, cause and substance respectively; that in accepting them we have not only ceased to posit angels who move the planets, but have also ceased to need them. But even if such is not the case, *the formulation of the higher or supplementary categories is the first thing in order.* There can be no proof of abstractness prior to an exact definition of the ideal of concreteness. Otherwise the presumption is in favor of the sufficiency of what must be admitted to be true. Because he has overlooked these considerations Professor Ward has been led to argue for the unreality of scientific concepts from their very definiteness and critical exactness.

There is no clearer statement of the view to which I am here taking exception, than that which appears in those pages of the second edition to which Professor Ward specially refers us. He there says: "To distinguish them from the old school, whom we may fairly term physical realists, we might call the new school physical symbolists. . . . But one believes that it is getting nearer to the ultimate reality and leaving mere appearances behind it: the other believes that it is only substituting a generalized descriptive scheme that is intellectually manageable, for the complexity of concrete facts which altogether overtask our comprehension."¹²

I object to these expressions because they attribute a certain arbitrariness and sportiveness to the conceptual truths of science. Whatever symbolism, or intellectual manageableness appears in the formulation of this truth, is an affair of thought, and is not reducible to any demand for the picturesque or the expedient. The discovery of the part played by the ideal of simplicity in the progress of science, has not debased science, but has enriched logic. Nor can I see that the relative purity of the conceptions of modern physics makes that science less germane to reality. On the contrary, the conceptions tend to free it from contradiction, and to reduce it to that form in which any final knowledge of reality must accept it.

As suggestive of the manner in which a general negative attitude tends to justify itself loosely and without careful discrimination, let me conclude with an instance taken from the Supplementary Note appended to the first volume of the second edition. It there appears that the author finds evidence of the unreality of scientific concepts in the fact that they must periodically submit to correction. He quotes Boltzmann as follows: "To-day the battle of opinion rages tempestuously. . . . What will the outcome be? . . . Will mechanical models in any case persist, or will new, non-mechanical models prove better adapted, and the component factors of energy control absolutely the domain? . . . Is it possible that the conviction will

¹² 'Naturalism and Agnosticism,' second edition, I, pp. 304-305.

ever arise that certain representations are *per se* exempt from displacement by simpler and more comprehensive ones, that they are *true*? Or is it perhaps the best conception of the future to imagine something of which one has absolutely no conception?"¹³ In the same note Professor Ward concludes his criticism of Principal Rücker as follows: "After all, then, he is only defending a working hypothesis, and one, moreover, that has lost greatly in prestige in the last half century. But if the atomic and other theories of the constitution of matter are but working hypotheses, and hypotheses strictly confined to physical phenomena, there is no justification for a theory which maintains that mechanism is fundamental everywhere and reduces the facts of life and mind to epiphenomena."¹⁴ That the provisional character of its results should be urged against any division of knowledge is to me intelligible only in the case of a too persistent attempt to discredit it. I fail to see how even the Spiritual Monism of Professor Ward's choice can be excepted from the general rule that all knowledge is subject to correction, and that to be convinced of truth is to be open to conviction. I can only believe that his use of such considerations in his argument is the sequel to his misconception of the critical function of philosophy.

After a reperusal of the two editions, guided by the suggestions of Professor Creighton and Professor Ward himself, I see no reason to alter my opinion that 'Naturalism and Agnosticism,' interesting and profitable though it may be, is vitiated by its general attitude to science. I cheerfully testify to the pleasure and instruction the book has afforded me, but, am, nevertheless, prompted to urge that no philosophy of science is sound which does not primarily seek by an analysis of its concepts to understand science on its own grounds. Philosophy may understand science better than science understands itself, but only by holding fast to the conviction of its truth, and including it within a critical system of truth.

RALPH BARTON PERRY.

HARVARD UNIVERSITY.

REVIEWS AND ABSTRACTS OF LITERATURE

The Neighbor, the Natural History of Human Contacts. N. S. SHALER. Boston and New York, Houghton, Mifflin and Co., 1904. Pp. x + 342.

A book by Professor Shaler always promises pleasure as well as profit and this volume is no exception. Indeed, an unusual charm pervades this book. The methods of scientific inquiry are linked with high ethical motives and we can not but realize that it is the fruit of ripe experience,

¹³ 'Naturalism and Agnosticism,' second edition, I., p. 307.

¹⁴ *Ibid.*, I., pp. 314-315.

the result of a lifetime of noble intercourse with man that is offered us. In these interpretations of human contact, to quote the author, 'the novelty is to be found in the careful study of the effect of tribal institutions and states of mind on the development of the modern commonwealth and the effects of a first contact of individuals on their subsequent relations.' We are given an interesting summary of the author's investigation of the natural history of human contacts and in the end we are assured that we need a complete revision of our social impulses and of our methods of contact with the fellow man. The book is in effect a plea for a deliberate self education in the matter of meeting one's neighbor.

The introductory chapters treat of the nature and extent of man's influence as an individual, as a source of influence on other lives, of the persistence of instinctive motives, to which in the evolution of man have been added the rational group of motives, giving us a mingling of the ancient, primal forms with the higher intellectual motives combining in action. "It is the first object of education and the noblest result of civilizing culture to bring these two groups of mental parts into a fit cooperation, so that they together make the enlarged humanized man." We are next confronted with the phenomenon of a most potent force, animating primitive man, second only to hunger in its intensity, that of anger and hatred. Without the corrective of sympathy, man would have remained a brute, keener witted than his ancestors, but a brute still. The origin and growth of sympathy is traced, beginning with the instinct of parental devotion to the child, through sympathy with the fellow kinsman which was later extended to all members of the common tribe. The nature of the tribal spirit is examined, personal experience being cited as an illustration of how the tribal impulse acts in us and how it can be checked and transformed. The benefits of the tribal motive, its power in binding man to man and preparing the way for the modern commonwealth, are discussed. The problem of uniting diverse races in one state, of reconciling ethnic differences, leads to a consideration of Roman and British methods of government. Here one might be inclined to differ from the author, asking whether British rule, successful as indeed it may seem in regard to the semblance of prosperity and contentment in its dependencies, has been equally satisfactory in respecting the inherent national temper of its subject peoples—whether, to use Mr. Shaler's own phrase, the British, 'who have little sympathy with alien races,' can be successful in fostering and caring for the indigenous motive of a people, subjugated, but still entitled to and desirous of living out their national life in their own way. We come next to the practical problems which our author considers at length—the Hebrew Problem and African Question. "The greatest obstacle to the advance of all races is the inevitable limitation of the sympathy which the ethnic pale imposes." This then is the danger of the tribal spirit. The 'categoric' motive, the desire to label men without treating them as individuals, this is the great evil and therefore such problems have arisen and remain, to make miserable the lives of thousands and paralyze and shrivel our human sympathies. The methods of contact with the neighbor are examined in

detail. Mr. Shaler maintains that this subject has not received the attention it deserves. In spite of psychological study and investigation, we hardly recognize how much the inheritance of our brute methods of intercourse still entails upon us in the way of suspicion and hatred. He points out why we have not been able to throw off these fetters. The struggle to get rid of prejudice is not new. "It is interesting to observe how early the moralists seized upon the evils of tribal hatred as the first of the evils to be cleared away in order to make possible the higher life." The one great teacher who saw most clearly that the ills that beset mankind lie in lack of friendliness to the neighbor of every estate, was Christ. But the religion of Christ has not accomplished its task. Indeed the religious motive has proved ineffective because in its own way it reinforces the tribal spirit. What then in the author's opinion is to take the place of religion to enable man to overcome the ancient impulses? Science married to sympathy, is his answer. A union of modern knowledge with the Christian motive. Unfortunately one finds it difficult to believe such a motive will appeal to any but those who are already humane and enlightened. Religion having in his opinion failed, Mr. Shaler would rely on scientific curiosity reinforced by sympathy as a motive for overcoming racial antipathies. The repulsive traits in our fellow men, from which in consonance with the heredity of tribal instincts we shrink, are sure to become interesting and even fascinating, he thinks, as soon as we learn to look upon them as objects of scientific study. This interest is likely in his opinion to be followed by sympathy. Thus we shall be able to transcend the barriers of prejudice and find to our delight the finer qualities that are hidden behind the unpromising exterior. Thus too a feeling of brotherhood will arise, urging us toward those whom at first we were inclined to spurn.

We can not but ask, however, does not our author exaggerate the possibilities of the scientific interest? Is it likely to influence the generality of men to such an extent? Is not the impartial attitude of scientific inquiry largely the result of temperament and of long training and can it be reproduced in the average man? Will not the same objection hold good here that we must urge against the efficacy of the religious motive and must it not be cited with even greater force against the scientific motive—namely that it appeals only to the few and but slightly affects the many? The average man, we are inclined to think, will not care to hear more about the 'Jew and the nigger,' what he sees on the surface being such as to deter him from desiring to continue his acquaintance any further.

On the other hand, there seems to be no reason why the two motives should be presented as mutually exclusive alternatives. Religion must still continue her divine task of teaching the law of brotherhood, and the new scientific interest may add its influence among those whom it can hope to affect. In either case, it is only the few whom we can expect to reach, but from them as a nucleus, the beneficent contagion can spread outwards, and the teaching of brotherhood to take the place of prejudice can continue to grow, in the course of time may we not trust? to grad-

ually transform man's hatred and persecutions into a new law of sympathy and kindness. Toward directing men into this new upward tendency the book of Mr. Shaler will be found a most valuable contribution. The exquisite humanity that is reflected from beginning to end from its pages, constitutes an indispensable component of the message which we trust it is destined to bring to a large number of readers.

HELEN ADLER.

NEW YORK CITY.

Die Welt als Wille zum Selbst. Eine philosophische Studie von MAX DRESSLER. Heidelberg, 1904. Carl Winter's Universitätsbuchhandlung.

The doctrines advanced in this book may accord with some of the general conclusions of idealistic philosophy, but the author gives no adequate reason for the acceptance of these conclusions. Only those readers will agree with him who have already reached the same position by other means. The presentation is more in the form of a poetical rhapsody than of a philosophical investigation, and emphasizes anew the need of a convincing statement of the grounds for belief in idealism, a statement based on the consideration of the process by which the conclusions are reached.

The author considers successively the abstract object in itself, the abstract subject in itself, art, mysticism and the self. Immediate reality is neither knowledge nor truth, it is only the immediate certainty of being. Truth is the mediated idea of that which appears immediately as thing. The naïve man believes in the certainty of the immediate realities which surround him and does not seek for a truth which transcends these. Scientific reflection finds truth in the material which is behind the phenomena, but its truth is still a thing. Even in the higher form of platonic idealism the thing remains a thing.

Truth, though, is not thing, but self. This truth is the key to mysticism, art and the true philosophy. A false mysticism abstracts from all material reality and considers the self-feeling of the natural subject as its immediate truth. It identifies the individual subject immediately with the whole truth, with the self. True mysticism and art reconcile the immediateness of the thing and of feeling; the truth of the one is to be found only in the other, but this reconciliation itself remains immediate and is based on feeling. Only in philosophy is feeling developed to knowledge, the thing to self, and only in this mediate knowledge is truth. The highest form of this mediate truth is individuation, the principle of which is the means of the will to know. Not being, but knowledge, is the truth of the individual subject.

The world has its whole reality in the relation of this self-realizing knowledge of the whole. The truth of the whole is eternally self-completing knowledge of self. The individuals are the agents in completing this self knowledge, which knows the world as its appearance and self-presentation, and is thus true developed philosophy.

WILLIAM L. RAUB.

KNOX COLLEGE, GALESBURG, ILL.

Die Erkenntniss des Transcendenten. FRED BON. *Annalen der Naturphilosophie*, January, 1904, pp. 203-232.

This article, though short, is to be recommended as an effective purgative for those who, beginning, perhaps, when young and, therefore, inclined to view the delectable as the true, have continued to nibble the sweetmeats put up in boxes labeled 'idealism,' and in whom the 'swallowing reflex' has been stimulated by the flavored icing that 'it is self-evident that the conscious is the primary, the material world only an appearance, and that there is no knowledge of a transcendent, but only a belief.'

From among many the meaning of the transcendent selected by the author is 'all that which is not present content of consciousness,' and in this sense 'knowing' is transcendent and causal. In this standpoint, its defense and development, consist the author's originality and suggestiveness.

The ordinary man, not ill with epistemology, asserts a true and real *knowledge* of the transcendent, in that he 'knows' that things are and persist independent of him. The epistemologist writes volumes to sicken him with a dose of doubts, arguing, *e. g.*, that if in dreams, hallucinations, etc., there has been belief, then uncertainty and finally falsity, so must, by analogy, all knowledge (?) of anything beyond consciousness be uncertain or only belief, for consciousness is the only 'evidence' there is.

Knowledge, however, as science takes it, consists of 'true,' not of 'evident,' fragments. To characterize a judgment as 'belief' is justified only if that which is believed in is not true. Therewith *some truth* is implicitly admitted; to discover the conditions for this is the author's problem. To think to be able by an argument by analogy to remove such a difference by way of which a certain point has been reached, is to burn one's bridges behind him, and then say they have not existed. 'Evidence' is simply the relation which the judgment bears to the one judging. Truth concerns the relation between the judgment and the object. Now 'a judgment is true if in the subject's notate, the object, designated by the subject of the judgment, are *found* those qualities that are considered to be characteristic of the predicate-notate, object, designated by the predicate's components.' These conditions are both necessary and sufficient for a judgment's truth, which is not increased by proof. For truth is independent of proof, else there were no truth, since an infinitely regressing proof is impossible. All proved knowledge rests on unproved, and in the perception-judgment the perception itself gives the truth of the existence of the perceived object, the transcendent.

Right here the epistemological idealist may be heard to whisper: 'Just as I said. As in a dream, so in perception, the immanent, the conscious, is the only certain thing; anything beyond is uncertain.' Granted that the 'evidence,' the belief, is influenced thereby, the truth is not. That a perception-judgment, as 'this book is red,' may sometimes be false, sometimes true, does not alter the fact that in this particular case it is correct.

How is it brought about that a judgment *relates* to its object? Its mere words do not suffice, but if these are understood there must be a third something to mediate between them and the object. For the 'old school' this was held to be the reproduced ideas, conscious states, constituting the meaning of the words. Beautifully simple though this theory is, and so deserving of being true, even though it is not, the author finds that a judgment, no matter how expressed, can be understood, without these, or indeed any, contents of consciousness other than the mere word-percepts being present.

The real *thought-judgment*, the thinking, knowing, understanding, is a *transcendent process*, which is causal, energy, and *mediates* between the words and the object. Specifically it is different to, generically like, the transcendent object. Judgment, then, is a causally correlating and not a creating process, and the correlation is furthermore specific, unique. In this way a judgment refers to one specific definite object. There exists a unique causal determination between physical quality, sense organ, conducting nerve and brain path, all transcendent. Such judgments are *true knowledge* of the transcendent; true, for if not, then not knowledge.

Thinking, then, though subjective, is transcendent, and may be accompanied by consciousness. A unique correlation of this latter with the specific transcendent subjective process, *i. e.*, the parallelistic hypothesis, must be granted in order to account for the *knowledge* of this 'inner world' emphasized so much by the epistemologist.

The proof that a *knowledge* of the transcendent is possible has served also to prove its existence, since to deny it is as 'thinking,' even a transcendent event.

Every *true judgment* over the transcendent involves a knowledge of the same not got by means of consciousness. This latter is neither basis, condition, nor means for such knowledge, but this basis is the transcendent thinking process. The author considers this to be his rather radical departure from the traditional theory of knowledge. Can the doctrine of the *a priori* have any other basis?

E. G. SPAULDING.

COLLEGE OF THE CITY OF NEW YORK.

On Mechanical Explanation. EDGAR A. SINGER, JR. *Philosophical Review*, May, 1904. Pp. 265-283.

The author defines the mechanical ideal as the hypothesis that natural science uses the dimensions of mechanics alone. The 'dimensions' of a science are the kinds of independent observation required to present a determinate problem in that science. These are in mechanics mass, length, time and velocity, or since velocity depends only upon length and time, mass, length and time. The mechanical ideal, therefore, is the hypothesis that natural science has only the 'dimensions' mass, length and time. If any science contains independent variables that can not be reduced to these or functions of these, it can not be considered mechanical. The paper goes on to show that the *a priori* reasons urged against the possibility of this ideal are insufficient. Those based on the

present incompleteness of definition of terms are met by improving our definitions; those based on the doctrine that everything in nature is for an end, which find their support, if anywhere, in biology, are based on inadequate evidence. The best biological opinion to-day seems to be that laws having reference to ends, which have not yet been reduced to mechanical terms, are either of temporary value only, or are economic devices. There is, at any rate, no disproof of the possibility of mechanism; a future paper will ask if there is proof of it.

The paper sets a high standard of lucidity and logical power, and after reading it one feels convinced that we have at present no right to deny the possibility of the mechanical ideal. But as to whether this ideal excludes the teleological one, as Doctor Singer seems to think, there is, I venture to think, room for discussion. Indeed, it is quite in the spirit of Doctor Singer's method to analyze further the concepts of mass, space, time, law and end, with a view to discovering whether the last includes anything not found in the first four. For example, *might* it not be the case that 'laws having reference to an end' would prove to be merely expressions of Mr. Charles Peirce's 'habit-taking tendency'—habits formed by organisms, which their environment has allowed to survive? If so, the explanation of apparently purposive functioning in organisms would be of just the same nature as the explanation of Newton's first law: a body in uniform motion continues uniformly because of this same habit-taking tendency. And suppose time is found to mean the abstract form of this tendency of things and processes to repeat themselves? What then becomes of the exclusion between mechanical action and action for an end? Of course it is impossible to justify such suggestions here; but they show that Doctor Singer's sharp line between mechanical and teleological may tend to fade. At least there is a very interesting logical problem before us: to define the concept of law, end and time. Surely we can not decide whether the mechanical rules out the teleological until we know the implications of each concept as well as we know those of number, magnitude, order and space. It is to be hoped that Doctor Singer will throw more light on this question in the future.

W. H. SHELDON.

COLUMBIA UNIVERSITY.

JOURNALS AND NEW BOOKS

THE MONIST. April, 1904. Vol. XIV., No. 3. *The Christ of Primitive Christian Faith. In the Light of Religio-Historical Criticism* (pp. 321-354): OTTO PFLEIDERER.—The Christ of faith must be distinguished from the Jesus of history. Christ, in his relation to God, has been conceived first as an adopted son, second as an incarnation of God, third as God's only begotten son. The body of the article consists in an account of the lives and teachings of Pagans and Jews which parallel in many respects the life and teaching of Christ. *The Coming Scientific Morality* (pp. 355-377): G. GORE.—"The object of the article is to show

in a concise form the real origin of morality—the dependence of morality upon fundamental scientific principles and the relation of science to good and evil.” The universe is governed entirely by natural law, and is, as such, perfect. The belief in evil is the result of passion and ignorance of science. *The Principle of the Conservation of Energy. From the Point of View of Mach's Phenomeno-Logical Conception of Nature* (pp. 378–386): HANS KLEINPETER.—“The results of this inquiry are the following: (1) The principle of the conservation of energy is in its present form incorrect. (2) A distinction must be made between ‘energy’ and ‘capacity to do work.’ (3) Whether the first or the second concept is embodied in the principle mentioned, are obtained in its place two laws; namely, the first and the second laws of the mechanical theory of heat. Furthermore, . . . without a consideration of the concept of reversible processes, it would appear to be utterly unfeasible to attempt a formulation of the principle of energy.” *Madame Blavatsky* (pp. 387–408): HENRY RIDGELY EVANS.—After discussing the anomalous popularity of occultism in a scientific age, the author gives an interesting account of the Theosophical Society and of Madame Blavatsky. *Psychology on the ‘New Thought’ Movement* (pp. 408–426): JOHN H. NOBLE.—This article consists of a collection of the passages in ‘The Varieties of Religious Experience’ which bear upon the ‘Mind Cure’ or ‘New Thought Movement.’ *The Élite of Democracy* (pp. 427–451): N. VASCHIDE and G. BINET-VALMER.—An impassioned protest, in the manner of Nietzsche, against the leveling tendencies of modern democracy and sociology which recognize individuals only as fragments of a mass, and respect them only for the degree of mediocrity which they may attain. Criticisms and Discussions (pp. 452–475): *A Review of Dr. Carus's ‘Fundamental Problems’ and ‘The Surd of Metaphysics’*: HENRY COLLIN MINTURN.—*The God of Science. In Reply to Dr. Minturn*: EDITOR.—Doctor Carus reprints from *The Princeton Theological Review* Doctor Minturn's criticism of his philosophy, and in his reply further elucidates and defends his doctrine of Nomotheism. *On the Definition of an Infinite Number*: G. A. MILLER.—A brief popular account of Dedekind's definition of the infinite. *Note on ‘A Buddhist Genesis’*: ALBERT J. EDMUNDS.—A recognition of Rockhill's translation (prior to the author's) of ‘A Buddhist Genesis,’ and a plea for further translation of Buddhist literature by Japanese scholars. *Present-Day Science and Religion*: W. E. ASHWELL.—The perfect compatibility of science and religion is vouched for by many great scientists, such as Henry Drummond, Isaac Newton *et al.* Book Reviews (pp. 476–480): Brief unsigned notices of the following books: Otto Weininger, *Ueber die Letzen Dinge*.—Rudolf Holzappel, *Panideal*.—George T. W. Patrick (Editor), *Studies in Psychology*.—Havelock Ellis, *Studies in the Psychology of Sex*.

MIND. April, 1904. N. S. Vol. XIII., No. 50. *Professor Bain's Philosophy* (pp. 161–179): WILLIAM L. DAVIDSON.—The chief points of Professor Bain's philosophy are interestingly and sympathetically brought out. His conceptions were influenced by his early training in the Scottish

Philosophy, by the scientific views of his time and by his own temperamental love of things practical and useful. It is to his willingness to sacrifice time and money in the cause of philosophy that *Mind* owes its existence. *Hegel's Treatment of the Categories of Quantity* (pp. 180-203): J. E. McTAGGART. - The author agrees with Hegel's treatment of the first two divisions of Quantity but disagrees with his treatment of the third division (Quantitative Ratio). He suggests a new treatment of that division which shall make possible a valid transition to the category of Measure. *Meinong's Theory of Complexes and Assumptions* (pp. 204-219): B. RUSSELL. - Meinong, through psychology, and the author, through logic and the influence of Mr. G. E. Moore, have attained a theory of knowledge of which the most important theses are as follows: "Every presentation and every belief must have an object other than itself. . . . What is commonly called perception has as its object an existential proposition, into which enters as a constituent that whose existence is concerned, and not the idea of this existent. Truth and falsehood apply not to beliefs, but to their objects. The object of a thought, even when this object does not exist, has a being which is in no way dependent upon its being an object of thought." *The Use and Abuse of Final Causes* (pp. 220-241): G. E. UNDERHILL. - A discussion of the conception of final cause as it occurs in Bacon, Spinoza and Kant. "The success of the scientist's application of final cause is for him a most important piece of evidence for the unity of the active principle at work in nature; . . . it shows him that final cause is no mere reflective judgment, no mere illusory hypothesis, but a constituent element in Nature." *The Psychological Meaning of Clearness* (pp. 242-253): I. M. BENTLEY. - After discussing the literature, the author concludes that "the essential elements of distinctness are definition and unity. Definition exists both within and between extensive and temporal incorporations. Unity may be predicated of all three types [extensive, temporal, qualitative] alike. The two elements of clearness are unity and in its negative aspect interpenetration." *Critical Notices* (pp. 254-284): G. E. Moore, *Principia Ethica*: B. BOSANQUET. - F. C. S. Schiller, *Humanism*: A. SIDGWICK. - E. Halévy, *La Formation du Radicalisme philosophique*: W. R. SORLEY. - W. H. R. Rivers, C. S. Myers and W. McDougall, *Reports of the Cambridge Anthropological Expedition to Torres Straits*. Vol. II. *Physiology and Psychology*: W. H. WINCH. - C. A. Strong, *Why the Mind has a Body*: NORMAN SMITH. - J. L. McIntyre, *Giordano Bruno*: T. WHITAKER. - New Books. - Philosophical Periodicals. - Notes and Correspondence.

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Adler, M. *Kausalität und Teleologie im Streite um die Wissenschaft*. Wien. 1904. 8vo. 241 pp. 4.50 m.

Ardigo, R. *L'idealismo della vecchia speculazione e il realismo della filosofia*. 2 vol. Parte I. Padova. 1903-4. 8vo. 235 pp. 4 l.

- Arndt, A. *Über das Böse*. Halle. 1904. 8vo. 78 pp. 1.50 m.
- Beckenhaupt, C. *Bedürfnisse und Fortschritte des Menschengeschlechtes*. Heidelberg. 1904. 8vo. 286 pp. 5 m.
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- Freudenthal, J. *Spinoza. Sein Leben und seine Lehre*. I Bd. *Das Leben Spinozas*. Stuttgart. 1904. 8vo. 349 pp. 6.80 m.
- Hinton, C. Howard. *The Fourth Dimension*. New York: John Lane. 1904.
- Hoppe, Edm. *Die Philosophie Leonhard Eulers*. Gotha. 1904. 8vo. 167 pp. 30 Fig. im Text. 3 m.
- Leland, C. Godfrey. *The Alternate Sex: or, The Female Intellect in Man and the Masculine in Woman*. New York: Funk & Wagnalls Co. 1904. 5 + 134 pp. \$1.00 net.
- McDonald, W. *Principles of Moral Science*. London, 1904. 8vo. 242 pp. 3 s. 6 d.
- Rothenbücher, Adl. *Geschichte der Philosophie*. Berlin. 1904. 8vo. 240 pp. 2.50 m.
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NOTES AND NEWS

A BOARD of Anthropological Studies has been established at Cambridge, the studies under the direction of the board comprising prehistoric and historic anthropology and ethnology (including sociology and comparative religion), physical anthropology and psychological anthropology.

At the meeting of the Board of Regents of the University of Nebraska, on May 26, Doctor Thaddeus L. Bolton, assistant professor of philosophy was made professor of psychology.

MR. W. M. STEELE, assistant in the Yale psychological laboratory, has accepted a call to a professorship of philosophy in Furman University, Greenville, S. C. Mr. Steele will take up his duties in September.

DOCTOR DICKINSON S. MILLER, of Harvard University, has been appointed lecturer in philosophy at Columbia University.

PROFESSOR I. WOODBRIDGE RILEY has resigned the professorship of philosophy at the University of New Brunswick.

THE JOURNAL OF PHILOSOPHY

PSYCHOLOGY AND SCIENTIFIC METHODS

OF SIMPLER AND MORE COMPLEX CONSCIOUSNESSES

I.

1. In an article already published in this JOURNAL¹ I have suggested that if the relation between human consciousness and the activity of man's nervous system is properly considered it may well be held that there is a thoroughgoing neururgic and noetic correspondence, *i. e.*, that all nervous activities correspond with psychic modifications of some sort, which may be sufficiently emphatic to appear in the field of attention, but which, if not thus emphatic, have their place in a broad undifferentiable psychic mass against which the field of attention is contrasted, which psychic mass I have called the field of inattention.

If we hold this to be true we at once find ourselves avoiding a difficulty which leads to great confusion in the writings of students of comparative psychology.

Assuming, as we usually do, that certain of our own nervous activities are unconscious, we not unnaturally argue that the activities of animals which display the characteristics of these particular so-called unconscious activities of our own are unconscious also. But the attempt to interpret the nature of animal behavior in this manner has led to so much controversy that it has resulted in the conviction among many biologists that no satisfactory objective mark of the existence of animal consciousness can ever be gained.²

The only basis any one of us has for the conviction that other men are conscious is an interpretation of other men's activities in terms of his own conscious experience. Our fellow men in truth tell us of their mental states, but their words would have no meaning for us did we not assume in them mental states corresponding with such of our own as we would describe in their language. We introject consciousness into them, as it were, as the result of a mere argument by analogy. And if we do this with our fellow men we

¹ 'Of Neururgic and Noetic Correspondences.' June 9, 1904.

² Cf. Edward Claparède, *International Quarterly*, December, 1903.

are equally warranted in going beyond this and assuming the existence of consciousness in correspondence with activities of animals very like ourselves, as the vast mass of learned and unlearned men constantly do.

The difficulties of interpretation on the basis of this argument by analogy still remain, however, so long as we hold that any of our activities are unconscious, but these disappear entirely if we accept the hypothesis here upheld; for then we are led to see that a consciousness of some form must exist wherever we discover an animal in which we find a closed nervous system. We must agree of course that as these nervous systems of the animals are simpler than our own, so the corresponding consciousness must be simpler than ours; and where the simplicity becomes very marked we must agree that the consciousness must correspondingly be so simple as to be difficult of interpretation in terms of our adult experience. Nevertheless, we can not blind ourselves to the fact that our own nervous systems at certain early periods of our development were fairly correspondent with the fully developed nervous systems of some of the lower animals, and we are warranted, therefore, in ascribing to these animals forms of consciousness quite comparable with the consciousnesses of the infant newly born, or in the early stages of its development.

2. This thought gains very greatly in interest in connection with our conception of the human nervous system as a highly complex system of nervous systems, to which consciousness, a highly complex system of psychic systems, corresponds. For we find within the human body certain minor nervous systems which correspond in complexity more or less closely with the whole fully formed nervous systems of certain of the lower animals which we must hold to be conscious beings. And this would lead to the suggestion that if these minor nervous systems within the whole human nervous system could persist as such, and yet be disconnected from the mass of the nervous system as a whole, they would be what we call closed nervous systems relatively independent and individual, and yet within the human body; and under our hypothesis these minor nervous systems as such would have minor consciousnesses corresponding with their activities.

But it is clear that such minor nervous systems in man do often persist as such although they are placed out of relation with the mass of the nervous system taken as a whole. This may be due to pathological lesions or to the use of the surgeon's knife; or it may result from what we may call incommensurability between the activities of the minor system, and of the mass of the system taken as a whole. And when it occurs we seem compelled to agree

that the disconnected minor nervous system has corresponding with its activities a little consciousness all its own.

We are thus led to see that it is quite possible to conceive that human consciousness is subject to the dissociation of minor psychic systems to a wide extent, so that we are justified in describing a human consciousness as a bundle of closely related minor consciousnesses, the most complex of which (corresponding with the activities in the brain) normally appears as preeminent.

3. But if we go thus far we are naturally led to take a further step; for we conceive of the minor nervous systems of the lowest order to be composed of what we call nervous elements; and if we conceive any such nervous element to be cut out of relationship with all others, still remaining alive, it would still remain an active neural entity; and it is difficult to see how we can refrain from assuming the existence of something psychically elemental corresponding with such a neural element's activities. Such psychic elements could not be consciousnesses, for they are conceived as elemental while consciousness is essentially systemic; but it is easy to see that they might well be now attached to, and again dissociated from, psychic systems, and that as the result a given consciousness might thus be now broadened and again narrowed.

4. If we accept this conclusion we are led to note that we commonly assume that so special a significance is to be given to the activities of the nervous system in man's organism that it alone is to be considered of moment in the relations of correspondence with consciousness. But our modern biologists are teaching us that all protoplasmic matter has powers of interaction, of 'conductivity,' similar to those observed in nervous tissue. It seems possible to hold then that while the consciousness with which we are familiar may be *practically* correspondent only with transfers of energy within the nervous system; nevertheless it may be that any transfer of energy in protoplasmic matter may have a psychic coincident.

This would lead us to hold that consciousnesses of a lowly grade may exist in living bodies which are systematized and yet without nervous system; and that plant consciousnesses of a sluggish type, which Fechner and many others have considered possible, may not improbably exist.

But beyond this we see in this view indications that human consciousness may not improbably be complicated by the existence of psychic correspondents of transfers of energy in other protoplasmic matter than that which we describe as nervous tissue; although it must of course be granted that the very superior 'conductivity' of this nervous tissue makes the part of human consciousness which corresponds with the activities of the nervous system vastly more

important than all the rest of the psychic correspondents of activities in protoplasm other than this nervous tissue. Under such a view human consciousness is not only the correspondent of activities in the cortex of the brain; nor only the correspondent of the activities of the nervous system as a whole; but is the psychic throb, so to speak, which corresponds with the whole throb of the activities in the man's living physical system.

II.

5. Turning now from the consideration of the nature of consciousnesses simpler than our own, the existence of which we all acknowledge, let us ask whether the hypotheses with which we are here concerned, if valid, throw any light upon the question whether there exist in the Universe forms of consciousness more complex than human consciousness.

Within the human nervous system, to the activities in which man's consciousness is supposed to correspond, are discovered, as we have seen, an indefinite number of minor systems within systems; and these minor systems resemble in general nature the broad system of which they are integral parts. It is naturally suggested then that if human nervous systems could themselves be related together, after the manner of the minor nervous systems within the whole nervous system, we should have a broader organism; and that corresponding with the same there might exist a broader consciousness than human consciousness, in which our individual consciousnesses would be minor psychic systems.

We appear thus to reach a suggestion in line with the common notion that the 'social body' is organic in its nature; and that there is a 'social consciousness' corresponding therewith.

So much careless thinking has been indulged in by those who have made use of these conceptions, that they have naturally become discredited; but it seems to me that the argument by analogy which we so constantly use in reference to other human and animal minds, and which we find so valuable in practical life, in connection with the fact that our nervous system is a complex system of minor systems, must lead us to pause before we reject these conceptions.³

³ For a fuller discussion of this subject *confer* my 'Instinct and Reason,' p. 189 ff. The most obvious basis of objection to the notion of the existence of an organically related 'social body,' is that individual men display closed nervous systems, *i. e.*, that they are isolated entities; while the minor systems in the larger nervous system are intimately connected physically, and thoroughly 'integrated.'

But if we inquire into the nature of this close connection and 'integration' within the minor systems of the human nervous system, we are compelled to acknowledge in the first place that they vary greatly in degree in the different

6. But if we allow ourselves to consider such views as the above, we are surely led to surmise, as many important thinkers before our day have done, that not merely such transfers of energy as occur in protoplasmic matter may have corresponding psychic effects, but that all transfers of energy in the universe, whether in living or non-living bodies, may have corresponding psychic effects; and that all together may form a 'Universal Consciousness' corresponding with the system of the physical universe.

Such a notion is as old in germ as Greek philosophy, and has from time to time been revived and developed by the moderns, notably by Fechner. But it has never been treated very seriously by the philosophical world; having been taken rather as a fanciful and poetical conception of no philosophic import. With our newly gained knowledge of the physical basis of human consciousness, however, it seems to me that this conception deserves to be given great weight.

If we consider the universe as a whole, as inclusive both of minor nervous systems thus related. And when we ask what we mean by integration we find ourselves able merely to assert that the minor systems are spatially contiguous, which contiguity is of course a relative matter; and that they are reciprocally reactive, *i. e.*, that no emphasis of activity in one minor system can be altogether without effect upon all the other minor systems with which it is 'integrated,' nor can its activity be unaffected by the existing activities of all these related minor systems.

Now it is true that individual men when viewed objectively seem to be isolated individuals, but we must confess that in thus describing them we speak relatively. They are in a sense contiguous, and they are related to one another in ways mysterious; but the relation between contiguous minor nervous systems is surely no less mysterious. Beyond this, so far as individual men are related they display directly or indirectly a reciprocity of efficiency of reaction; and may thus be held to display the signs of 'integration.'

And if we turn to the subjective view; it is true that we usually speak of ourselves as if we were thoroughly isolated psychic atoms, as it were; but the late studies of the nature of the self of experience by men like Professor Royce have surely brought to us convincing evidence that even our conception of our own selfhood is inextricably inter-twined with our realization of the existence of other selves.

To the above may be added a second objection; viz., that the relations between human beings which may be claimed to be of organic form, are constantly changing; that, as Professor Sidgwick put it, individual men readily shift their allegiance from one social group to another, and may actually belong to diverse social groups at one and the same time.

But evidently if a social body exists it must be very loosely integrated, and we should therefore expect to find its minor systems 'shifting their allegiance' from one social organically related group to another. Nor is it difficult under our view to conceive that a given human individual minor psychic system might at the same time be part and parcel of very diverse broader social minor psychic system; these diverse broader social minor psychic systems forming a still broader organic whole or social consciousness.

what we usually call the inorganic and the organic, we perceive that it may be looked upon as a vast organic system. In it, as in the human nervous system, are various parts which are more or less complex minor systems within wider systems. Broadly speaking all parts of this vast system are related by a direct or derivative contiguity; and they are subject to a thorough reciprocity of reaction, so that no element can react without in some measure affecting the activities of all other parts of the vast system, nor can the element's reaction be what it is except for influences upon it from all other parts.

If then it be assumed that a psychic somewhat corresponds with each transfer of energy within this universe, we must hold that there exists a Universal Consciousness in which our human consciousnesses are minor psychic systems related with all sorts and kinds of like and diverse minor psychic systems.

7. If then the analogy with the structure of the human nervous system and the corresponding human consciousness is to be carried out, it would appear that there must be in this universe an enormous variety of minor consciousnesses corresponding with the enormous variety of types of physical systematization in this universe. These consciousnesses must vary in breadth and complexity; and as certain minor systems within the whole vast physical system must be more closely systematized than others; so certain of these minor consciousnesses must be more closely systematized than others;—must appear as more nearly closed systems;—as more self contained, —as more individual,—than others.

Human consciousnesses would, in this view, be special forms of such closely systematized,—self-contained,—individual,—psychic systems.

Any individual thing would thus appear to be merely a special minor system within a broader system, which minor system is at the time considered in and for itself, without relation to any broader system to which it may belong. In fact under this view we can never mean more than this when we think of any individual thing, which is for us but a bundle of what we call activities, which are in fact merely emphatic activities within minor systems, which latter, if we take a wider view, are merely emphases of activity in minor systematized parts of broader active systems.

What we describe as an individual man would thus appear to be merely a special minor physical system within a broader physical system, which minor physical system we at the time consider in and for itself; and correspondingly each individual consciousness would thus also appear to be merely a special minor psychic system within a broader psychic system, which minor psychic system we

at the time consider in and for itself. An individual consciousness would thus appear merely as an emphasis within a minor psychic system which is itself within a wider psychic system, without which it could not exist.

8. We have thus seen that it is possible to conceive that in this universe there exist innumerable grades of consciousnesses other than human consciousnesses. As Professor Royce⁴ puts it "we have no right whatever to speak of really unconscious Nature, but only of uncommunicative Nature, or of Nature whose mental processes go on at such different time-rates from ours that we cannot adjust ourselves to a live appreciation of their inward fluency, although our consciousness does make us aware of their presence. My [Professor Royce's] hypothesis is that, in the case of Nature in general, as in the case of the particular portions of Nature known as our fellow-men, we are dealing with phenomenal signs of a vast conscious process, whose relation to Time varies vastly, but whose general characteristics are throughout the same. From this point of view, evolution would be a series of processes suggesting to us various degrees and types of conscious processes. These processes, in case of so-called inorganic matter, are very remote from us; while in the case of the processes which appear to us as the expressive movements of the bodies of our human fellows, they are so near to our own inner processes that we understand what they mean. I suppose, then, that when you deal with Nature, you deal with a vast realm of finite consciousness of which your own is at once a part and an example."

9. If such innumerable grades of consciousnesses exist corresponding with innumerable grades of physical embodiment, then at times human consciousnesses may become inherent parts of such other forms of consciousness broader than our own. Then although we, as minor psychic systems, could not be said to 'know' the consciousness in which we inhere, we might expect to appreciate a difference of what Doctor James might call our 'feel,' as the result of this inherence. That we often do seem to appreciate that we are swayed by far-reaching, but ill-defined, influences broader than ourselves can not be questioned, although we experience mainly the effects due to what may be a breaking away from these influences.

As Lowell put it in his 'Under the Willows,'

"But suddenly the sound of human voice
Or footfall, like the drop a chemist pours,
Doth in spacious cloud precipitate
The consciousness that seemed but now dissolved
Into an essence rarer than its own,—
And I am *narrowed* to myself once more."

⁴"World and Individual," II., p. 225 ff.

10. If such other forms of consciousness exist in the universe, not only may we at times, as we have just seen, become inherent parts of some of those of higher grade than ours; but it is also possible that at other times such diverse consciousnesses may merely attach themselves to ours, as it were, leaving our own consciousnesses essentially intact; but in such cases the other consciousnesses may serve to produce emphases in our own consciousnesses, within the field of attention, which may point to influences from without such human consciousnesses as are familiar to us.

And in my view it is to the existence of such forms of consciousness that the evidence emphasized by Myers points; so far as it points to anything.

In his 'Varieties of Religious Experiences,'⁵ Professor James, in referring to some early experiments of his own, says "One conclusion was forced upon my mind at that time, and my impression of its truth has ever since remained unshaken. It is that our normal waking consciousness, rational consciousness as we call it, is but one special type of consciousness, whilst all about it, parted from it by the filmiest of screens, there lie potential forms of consciousness entirely different. We may go through life without suspecting their existence; but apply the requisite stimulus, and at a touch they are there in all their completeness, definite types of mentality and adaptation. No account of the universe in its totality can be final which leaves these other forms of consciousness quite disregarded."

But if all this is true it can not be held that such experiences of ours point to the existence of 'disembodied spirits'; rather does it point to other than human forms of consciousness, and consciousnesses differently embodied, forms of consciousness so differently embodied in fact that in the words of Professor Royce quoted above, 'we can not adjust ourselves to a live appreciation of their inward fluency.'

HENRY RUTGERS MARSHALL.

NEW YORK CITY.

THE DYNAMIC CONCEPT OF THE INDIVIDUAL

PERHAPS no philosophical concept presents greater difficulties to the dynamic realist than that of individual existence. If monism be consistently genetic and uncompromisingly dynamic, the fact that the world presents itself to us in the form of units of experience is not as self-evident as to common sense it might appear.¹

⁵ P. 388.

¹ Strong, in his 'Why the Mind has a Body,' very pertinently says of 'things-in-themselves': "If by 'things-in-themselves' we understand realities not only not immediately knowable to us, but unknown to any one, unexplained

On the other hand, it is not a defect that can be attributed to realism alone. It is certain that idealism meets the same difficulty in aggravated form and materialism breaks down logically either by ignoring the necessity for a nexus between its units or by reason of an ambiguous postulate for supplying it.

The three fundamental categories or forms of thinking, mode, space and time, afford us the 'this-now-here' of experience and the essential of each of these is a continuum broken into units. Neither time nor space could ever be presented if they were unbroken, and difference or change is essential to modality. But the 'this-now-here' characterizes the psychic, as contrasted to the psychological—the real in experience as contrasted to the real in recollection, or the 'that-then-there.'

The difficulty 'of assigning to non-empirical existences a nature, or accounting for our knowledge of them, if assumed,' referred to by Dr. Strong, is removed by dynamic realism by rejecting not only the limitations of phenomenalism, which, as this author points out, 'makes no provision for the knowledge of the minds of other men and animals,' but by avoiding the other extreme which ignores the primacy of experience.²

But, as Professor James says, 'our finiteness and limitations seem to be our personal essence' ('Human Immortality,' p. 29). If the dynamic view that creation is the self-limitation of energy be correct, it follows that all reality is individualized. The subjectivity

even by themselves, antithetical to consciousness and quasi-material in their nature—in short, unknowable, undefinable x —their irrationality and absurdity can not be too freely admitted."

²It may be noted here that Dr. Strong's argument that, because we do know other minds when we theoretically are impotent to do so, there is proof of 'transcendence' in our thinking seems to the writer to rest on the fallacy of failing to distinguish the psychic and the psychical (though this distinction is often made in the work). We do not *experience* other minds when we posit consciousness in them. But neither do we experience our logical processes as such when applied to the immediate data of our own experience. To us the operations of other minds are not real, but they may be as true as any kind of knowledge whatever. The source of our information is indirect, but so is that of objective changes in general. We know of them by information and construe them by analogy. We can no more deny the validity of the statement, 'I feel sad,' than the other made by the same person, 'I see a light.' Of course the ultimate validity rests on the law of coherence in both cases, but is that what Professor Strong means by 'transcendence' and instinctive knowledge? Perhaps his cosmological proof of 'things-in-themselves' can be construed to be an expression of the law of coherence or congruousness. "Things-in-themselves must be assumed to fill the gaps between individual minds, and give coherence and intelligibility to our conception of the universe." To his physiological proof we demur; it is not true that 'our perceptions are preceded and conditioned by physiological events, and that this marks them off as effects.' This is, we think, far too naïve a conception.

involved in realizing affords the sole relation on which individuality can be based. This is the relation to the subject. In a very true sense all individuality is created by me. The validity of the individual is precisely that of reality in general. Spontaneity and resistance are the parents of a universe of individuals, but they can come to realization only in an individual percipient.

To admit that one can not comprehend self-limitation is not difficult in a field where so little can be understood, but this is as intelligible as any conception of the origin of the cosmos and at least avoids the usual logical errors.

When we analyze our judgments which create for us units of various orders, such as individuals, species, genera, etc., we are forced to admit an equal validity for all these categories. That is to say, that, considered as a matter of pure reflection, an individual is only a group of more or less arbitrarily assembled characters (activities), while we can but believe that the link that binds these also binds in the same group many other activities which we do not now know directly, though we may go on to discover them. We may admit that if it were possible for us to gather all these activities into the focus of our thinking there would be no individualizing. Royce has shown in various places that the attempt to create individuals by assembling properties that shall possess the uniqueness necessary to individuality must ever fail. Still the erratic granite boulder a hundred miles from its source and the human babe, we feel sure, are individuals.

The individual has the advantage over the species or genus in that it is unique by virtue, not of its supposed qualities or energetic forms, but of its relations to me as a percipient. Realities of that immediate and compelling sort which direct experience alone can produce are attached to individuals but not to species. A species is created by recognizing bonds or relations between qualities in thought. A species may be true, but it is not, in our sense, real. The individualizing moment is not any combination or relation of qualities, but the reality growing out of relation to the subject. The individual may not be true, even, as a product of judgment, but the defects of judgment do not affect the elements of reality contained. The validity of the concept of individuality is bound up with that of reality and is inseparable from the ground of all knowledge.

Realism has no difficulty with the bare concept of individuality, which rests, as we repeat, on the same criterion of congruousness as reality. The *content* of the individual, *i. e.*, the dynamic element, will be admitted, but the validity of the limitations which make it individual may be denied in so far that the right to ascribe to the

limitations, set up by the subject, objective validity is called in question. If the child fill his pint cup repeatedly from the ocean are the several cupfuls individuals? Here again the genetic law of congruousness must be called in. Our minds are integral parts of an organism—the universe. The laws of activity which our minds present have grown up genetically with all the activities of the world. There is an evolutionary relation between the energy of my thinking and the energetic forms of the external world, therefore relations established in one sphere correspond in some way to relations existing among the other class of elements. By this means the dynamic school escapes the weakness pointed out by W. H. Sheldon in the recent writings of the so-called ‘pragmatic’ or Chicago school when he says: “The empirical method with which pragmatism sets out is indeed the only correct one, but it has abandoned this method. . . . Pragmatism in neglecting the analytic study of these categories (permanent reality, causation) is narrow and unphilosophical.”³

We create objects by thinking properties into relations, but the fact that they are thought together thus and not otherwise is evidence that some special bond or relationship actually exists in the energetic complex designed as an individual. It might be that another kind or stage of being would carve other individuals out of the same groups of properties, and these would be true for him. There would be an ‘external’ correspondence—true relationship, in this case also. For example, a man may be at one time most impressed with his own bodily worth and be willing ‘to give everything he hath for his life,’ while at another time the subordination of self to the claims of a higher unit—say society—may lead him to sacrifice all to the ideal of the new sphere of self-preservation. Again, a crystal may prove to be composed of thousands of exactly similar component crystals and a plant may be divisible into an indefinite multitude of integral units.

As philosophers, then, we may admit with the idealists that, objectively speaking, individualization is purposive, a teleological abstraction, but practically to us each this teleological fragment is a real which is also real to our neighbor to the exact extent to which he resembles me, though it will not be exactly the same to him as to me.⁴

³ *Journ. Psych., Philos. Sci. Method.*, I., 4, p. 105. James likewise laments the “great gaps in that system. . . . There is no cosmology, no positive account of the order of physical fact as contrasted with mental fact, and no account of the fact that different subjects share a common object-world.” (*The Chicago School*, *Psych. Bull.*, Vol. I., No. I.)

⁴ The idealistic view is briefly but adequately set forth, for example, in Professor Royce’s ‘Conceptions of Immortality.’ “The very conception, then, of an individual as a real being, precisely because it is no abstract conception

We may rest secure in the belief that the algebraic terms we employ retain their correspondence to the objective facts throughout all the permutations of our problem, provided our methods are not erroneous and that our answer, when the necessary substitutions are made, will possess objective validity. We deal with our x , y , z and are content to call them *real*, but we can never know their dynamic counterparts, apart from their effects on us, until our limitations drop away. The idealist deals with the signs for multiplication and division and finds his warrant for reality in these evidences of purpose. The dynamic realist accepts both as representative of the flux of continuous but modalized energy forming part of a universe of teleological activity which validates the categories alike of reality and of truth.

The above considerations bring us to the possibility of a realm where the laws of our thinking do not prevail. This is the land of the absolute. The absolute,⁵ we are told, is unlimited, unrelated and unconditioned; it is uncaused, and within its realm there is no cause. It is, moreover, entire, complete, perfect. Such are its claims. Let us examine them. If unrelated it can not exist in the same universe with related things. One of the first things that strikes us in this connection is that it stands in relation (of opposition) to all things we know. As Hegel showed *ad nauseatam*, pure-being, that is absolute, unrelated being, is the same as non-being, *i. e.*, does not exist. 'To conceive nothing is the same as not to conceive at all' (*Malebranche*). Much the same result is reached if we examine the word 'unlimited.' If unlimited, it would include the facts of relative being to which it is proposed to oppose it.

The descriptive terms of the second class, in so far as they are not negations in positive form, make it necessary to include as valid in them whatever is valid at all. If the absolute is the perfect, entire, complete being, then such segments as may appear in our experience are also included in its own validity, for if the universe be perfect, the conclusions valid in partial experience must possess some kind of validity for the whole.

We conclude, therefore, that the reality of our experience is not destroyed by appeal to a name for a negation, as such impossible. Again, although the reality implied by *our* union of objective and subjective in experience might appear very different to an absolute, *i. e.*, a perfect Being, still it would be real for us. Moreover, if He

but is rather the conception of a unique being, is one that no pure thought or experience can express, but is a conception expressible only in terms of a *satisfied will*. . . . I conclude, then, so far, that if this world contains individuals at all it is a teleological world." (Loc. cit., p. 48.)

⁵ 'Universal' is a word better suited to the purposes of this discussion.

were a perfect and complete being His being would include the relative reality as part of His own absolute reality. A totally misleading universe would be an impossible universe.

Properly conceived, the relation between relative and absolute is not one of negation, but that existing between the parts and the whole in which they subsist.

But the notion of relation has a deeper significance. While it is true that reality in terms of experience reduces to an affirmation (subjective) of attribute (objective) and that the attribute is always a 'doing' or activity, yet, philosophically, the reality is incomplete unless there is included an *End* or purpose—a link to other reality. This 'Endzweck,' to use a German word most nearly answering our purpose, is inherent in all activity and is that which connects this particular doing with all other doing into an organic system. Unrelated reality is impossible.

These are difficult ideas. One might illustrate by the white corpuscles in human blood. Viewed singly they perform their functions as independent organisms, but they are quite unintelligible until these functions are perceived in relation to the sustenance and preservation of the body at large. The life of an individual is unintelligible until considered in relation to its antecedents and subsequents. The atom or ion or electron is non-existent except in so far as it is related to others. Lotze was right in saying that reality means 'standing in relation.' Relativity is the philosophical construction of reality. This conception involves the necessary counterpart—that of the absolute, that system or organization (organism) in which all being finds its relation. If the absolute be contrasted to the relative, this is by comprehending and so fulfilling it.

The distinctions which have been made involve the use of words that have been employed in different and even opposite senses during the history of philosophy, but we may simplify matters by starting out from the statement that reality consists in standing in relation and that this relation is dynamic. Realities are not simply thought together; they work together. Action and reaction is another way of defining standing in relation. Now if one of the elements of reality is always an active self, as in experience it always is, then we call self, subject, and the other element of reality, object. (Popular language retains evidence of the fact that formerly the two terms were used the other way about, but this need not disturb the present philosophical usage.)

The union of the two—the affirming by me of an attribute—constitutes our *realization*. Moreover, in more complicated thinking we may recognize the objectivity of attributes as related to other subjects than ourselves and so arrive at an objective universe.

In this case the many subjects fuse into an absolute subject, the totality of all affirmation as objective to which the attribute exists. Thus we apparently divorce the attribute from exclusive relation to the self of experience and form a higher type of reality, a being of absolute affirmation—of independent existence. We are no longer obliged to think of the external world as dependent on our affirmation of it, but as being once for all absolutely affirmed or valid to all possible subjects.

Here, as before, reality is the union of objective (attribute) and subject (affirmation), but now the subject is not self, but the absolute. Something like this is perhaps what Martineau meant by speaking of matter as something objective to God. But we are not yet speaking of matter. It is easy to see that subjective and objective may be used for either member interchangeably.

Hegel declares that 'the antithesis of subject and object arises originally in the thinking activity, and that we are compelled to postulate a world in antithesis to the thinking subject, not by any power perceived by the senses and forcing itself in from the outside, nor by any necessity set over against thought, but simply by the nature of thought itself' (*Eucken*).

Having traced the origin of an ideal objectivity freed even from dependence upon the single self as subject in experience, it is futile to inquire as to the validity of this objective independence. It is valid as our creation and has all the validity that anything can have for us. Practically we are usually more ready to doubt the existence of our subjectivity than the objective world of attribute presented from without. But if reality is standing in relation, and perceiving (creation) of relation is the function of mind, then we must accept both elements in reality. Mind must have faith in itself or all progress is at an end.

C. L. HERRICK.

SOCORRO, NEW MEXICO.

DISCUSSION

A REPLY TO DOCTOR HOLT

I TAKE this occasion to thank Doctor Edwin B. Holt for his very kind criticism¹ of my article² on 'Time-Perception' and to answer as best I may the more important of his objections.

1. Doctor Holt urges that the ratio of the change in an element of a psychosis to the change thereby induced in the psychosis as a

¹ See No. 12 of this JOURNAL.

² *American Journal of Psychology*, January, 1904.

whole (a ratio which I symbolize by $\frac{do}{ds}$, and advocate as the measure and representative of the specious present), 'is already a second derivative,' from which it would follow that, when the rate of change was constant, the specious present would be zero. My critic supports this objection by the following statement: "An amount of change is always an amount of change in a certain amount of time, that is a *rate of change*." But why Doctor Holt should thus identify a change, or alteration, with the rate at which the change or alteration takes place, I am at a loss to imagine. We do not identify distance with velocity, or velocity with acceleration. The amount of change is equal to the continuously acquired difference between the earlier and later states of a thing. The change from an egg to a chicken would be the same in amount (though not in rate) whether it occurred in a few weeks or a few years. And this for the same reason that a mile journey is a mile journey, whether it takes a year or a minute.

2. Along with the above, the critic urges another and far more vital objection. 'Change can not be defined without reference to time,' he says, from which would seem to follow the impossibility of making the specious present, or amount of time perceived at any moment, depend upon the ratio of the objective and subjective changes occurring in that time. And later on in his review (p. 322), evidently having this same objection in mind, he says, 'Now I submit that the specious present is not a rate of change . . . it does not mean to us any rate of change or the like.' To all of which I answer that the fact that change presupposes time does not imply that it presupposes any given amount of time, and that it is in no way incompatible with the view that the amount of time occupied by a change is always and inevitably measured by the reference of that change to a contemporaneous standard change. In the external world, the standard change is the rotation of the hands of a clock, or the rotation of the earth. In the internal world of immediate experience, it is the change in our psychosis which is produced by, and concomitant with, the change in any one of its distinguishable elements. Indeterminate time (like indeterminate space) may be objective and absolute, real and prior to all change; but definite durations, or *amounts* of time (like amounts of space), are subjective and relative, presupposing, and not presupposed by, the changes (or bodies) which fill them. This general conception of the relativity, and dependence upon their contents, of all time- and space-magnitudes, to which Doctor Holt does not refer, was given as a *lemma* in the second section of my paper, and constitutes the justification for that interpretation of the specious present to which he objects.

3. Doctor Holt further urges that I take no account of the contents which are continually passing out of the psychosis. I do not, indeed, take account of the contents which have passed out of consciousness, but I take account of the effect which their passing out has upon the states that remain; which effect is precisely what we should expect, namely, a diminishing of the psychosis, which normally produces a decrease in the ratio $\frac{do}{ds}$ or a contraction of the specious present. It is a matter of observation that when experiences are constantly dropping out of consciousness the specious present is short, while, on the other hand, the more cumulative an experience is the longer is its time span.

4. My critic says: "It is furthermore absolutely necessary to define the conditions under which a given sensational element is said to belong to the objective content; how long will it remain objective, and when will it pass over and become a part only of the subjective aspect?" I admit that there is justice in the criticism implied in this question, inasmuch as, in several places in my article, I spoke of 'the incoming content' as 'the object,' whereas I should have said the *focal* object, or the object *par excellence*—least subjective, because least identified with, and most discriminated from, the system or structure of the psychosis as a whole. I had supposed that my meaning would be clear from the statement given in the summary, which I now quote: "The psychosis considered only in its collective unity is subjective; considered only in its distributive plurality, it is an aggregate of objects; considered (as it must be) under both aspects simultaneously, it is a subject-perceiving-objects." Just as each side or element of a triangle is itself void of triangularity, and yet in relation to the other sides constitutes a triangle, so, I think, do the objects of a subject constitute, in their mutual relations or structure, that very subject whose objects they are. Nor do the inseparableness and interdependence of the distributive and collective aspects of a system interfere with their distinctness and their ability to vary at different rates. A change in the elements of a system produces normally a less—but sometimes a greater—change in the system as a whole. Some elements are always more closely identified with the structure of their system than others, and they consequently appear as more subjective; the longer a content has been present the more is it interwoven with the structure of the psychosis, and the more is it *ours*; the preexisting states of consciousness thus always appear as more subjective than the incoming. Again, feelings and emotions usually suffuse the entire psychosis in which they occur, and we can not regard them as we do objects in space, *i. e.*, as elements distinct from, and

relatively indifferent to, the structure of that psychosis; they are felt to be at once subjective and objective, or, as Rosmini puts it, 'the feeling and the felt are one'; the feeling of pain is a painful feeling, though the perception of red is not a red perception. Finally, in the case of a voluntary act we have an experience wholly subjective, for a true or free volition, in contradistinction to an impulse, is always a resultant of the entire system of present contents taken collectively—a unique expression of the Self or Ego, rather than of any one of its constituent objects. This is perhaps sufficient in answer to Doctor Holt's question as to the relation between the subjective and objective aspects of consciousness. I have dwelt on the point because it is the second of the two assumptions on which all the conclusions of my article depended. These assumptions were: I. The measurability of any time-period (physical or psychical) by the ratio of a change occurring in it to a standard change also occurring in it; such a ratio not requiring itself any duration, but being realizable at each point in the period. II. The identification of the subjective and objective poles of a psychosis with its collective and distributive aspects.

5. The last criticism of Doctor Holt is the most sweeping, though not, I think, the most important of all. He apparently feels that there really is no problem involved in the specious present, or that if there is, the Absolute Idealist has solved it by his 'timeless consciousness.' "Several moments," says Doctor Holt, "are in fact not present at any one moment. They are present altogether in consciousness, but not altogether in time, as the question paradoxically insinuates." But I did not insinuate that several moments were present at one moment in time (which would be paradoxical), but that they appeared to be present at one moment (which is a fact). It is a fact, that is, that at each and every moment of our waking life there is presented to us a specious segment of the just past. That fact is what we have to explain. The idealistic explanation, which Doctor Holt finds so convincing that he wonders at any one discussing the matter further, seems to me, I am ashamed to say, both unintelligible and irrelevant. To the question, 'at what time do we perceive together the several stages of a process?' the idealist replies, 'at no time.' Neither in a succession of many moments, nor at any one moment do we perceive, for example, a melody, but at the eternal or timeless moment. To which I must answer, that there is, so far as I can see, nothing timeless, or eternal, or in any way uncanny, about the moments when I perceive a melody. I perceive it, when I am in a given place, at a given time, which is precisely the time when the melody is being played. I am perceiving it as a whole (if it is brief enough) at each moment when it is sounding.

And my psychosis taken collectively, as a self or subject, is as much in time as are those of its elements which, at each moment, are perceived together as successive objects. And it is just because it is at *each and every* moment that we are conscious of time-segments, that I can see neither meaning nor propriety in saying that we are conscious of them timelessly, or at *no* moment.

W. P. MONTAGUE.

COLUMBIA UNIVERSITY.

REVIEWS AND ABSTRACTS OF LITERATURE

Leitfaden der Psychologie. THEODOR LIPPS. Leipzig, Verlag von Wilhelm Engelmann, 1903, 8vo, pp. 349.

The following lines are written, not with the view of furnishing a general criticism and estimate of Professor Lipps's new book on psychology, but rather with the view of calling attention to the ripened product of the life-work of a man whose influence in Germany is a power for good in the ethical quite as much as in the intellectual world. To Professor Lipps the word 'psychology' covers a multitude of things. I should be inclined to characterize the 'Leitfaden' as a system of philosophy in outline, with especial emphasis laid upon its psychological aspects. Certainly the last ten pages of the book, called a metaphysical appendix, can not be regarded as containing all the metaphysics in the book. In the body of the work we are treated to the author's views of the ultimate nature of the external world and of the mind, and are introduced to a philosophy of ethics and esthetics. The name to be applied to all this is, perhaps, of secondary importance; but the fact remains that we have here that far-reaching view of things that most of us are accustomed to call a philosophy rather than a psychology. We have glimpses of a system of ethics and esthetics, and the foundations of a philosophy of religion. In other words, we have a whole man, and not merely one department of his activity; which makes this book, to many of us, more interesting than, for example, the more bulky 'Esthetik' that has also recently seen the light.

The 'Leitfaden' was produced in a surprisingly short space of time—I believe within a period of two or three months—which rapidity of composition was made possible only by the fact that the material was already at hand. The process was a precipitation of views long in solution, and, in part, a gathering up of opinions embodied before in special monographs. There is some objection to this rapidity of composition. It is apt to result in a work which is clothed in the habitual forms of thought and expression peculiar to the author, and bears the clear imprint of his personality; but for that very reason the reader may find it more difficult to feel at home in the book. The more perfectly my old shoe fits me, the more unlikely it is that it will fit exactly the foot of my neighbor. For the market, shoes must be made for the 'average' man;

and the same is true of books; we must write them for those who have not been living in our world and thinking our thoughts. I can not but think that the 'Leitfaden' expects rather too much of its reader, and that it would have been well to write out some things much more at length.

But to the doctrine contained in the book. Professor Lipps regards it as the first duty of the psychologist to observe, analyze and describe the facts of consciousness. When this is done, he may go on to the discovery of uniformities, the formation of laws. This task he may approach in a twofold way. He may confine himself to facts of immediate experience, consciousness-contents as such, and develop a psychology of self-consciousness in the limited sense, a science for which there exist no 'real' objects, in the sense in which the word is used in physics—objects beyond and independent of consciousness. Or he may regard the consciousness-contents as phenomena, and refer them in thought to a real 'ground,' as one refers physical phenomena to atoms, ether-vibrations, etc. In the latter case one passes beyond the merely phenomenal, and one attains in the realm of mind to a world of realities analogous to the real external world as we conceive it to exist. Such a psychology develops into a logic and epistemology, an ethic and esthetic.

To Professor Lipps the psychology that contents itself with the observation and description of phenomena as such is an incomplete and unsatisfactory science. A psychology 'without a soul' can explain nothing. Mental phenomena as such are not causally connected with one another, and we first enter the field of causal connection and of explanation when we distinguish between mental phenomena or 'consciousness-contents' and the real psychical occurrences (*Vorgänge*) of which they are the phenomenal manifestation.

The consciousness-contents may be divided into four classes: (1) the self or ego, with its determinations, the feelings; (2) sensations and sense-perceptions, that is, simple and complex sensational contents, with the spatial and temporal forms according to which they are ordered; (3) the immediately experienced relations of the self or ego to objects, and the self-relations or relations in general; (4) the representatives of all of these in memory or imagination.

The presence of these contents in consciousness is the outward and visible sign of real occurrences taking place in the soul, and their appearances and disappearances may be explained as, not a result, but an indication of the relations of such occurrences to each other and to the soul itself. The acceptance of this distinction between 'Inhalt' and 'Vorgang' furnishes us with explanations; for example, with an explanation of all those facts which have led men to assume the existence of unconscious sensations and ideas. Each 'Vorgang' has a tendency to appropriate psychical force at the expense of every other. There is, therefore, a constant rivalry among them. One which has been highly successful and has triumphed over all others is 'apperceived,' that is to say, it becomes determinative of the changes taking place in the mental life, and the consciousness-content corresponding to it occupies, as we

express it, the centre of attention. But such a triumph can be but temporary. The psychic force must ebb, and the 'Vorgang' may fall to a point which may be called the 'threshold of consciousness,' *i. e.*, a point at which, but not below which, it may have an 'Inhalt' which represents it in consciousness. That which possesses force to a lower degree has no representative in consciousness, but it does not on that account cease to exist and to exert an influence. It may be called an *unconscious* sensation or idea, but one must be careful not to suppose that by such an expression is meant some sort of unconscious consciousness. It is not a content of consciousness at all, but a something assumed to explain, to make intelligible, facts of consciousness as they are directly revealed.

It is beyond the purpose of this paper to examine in detail Professor Lipps's account of the various classes of psychical phenomena. It is characterized by much shrewd observation, and must be regarded as of value even by the psychologist who adheres to the 'soulless' doctrine which Professor Lipps disapproves. The question which interests me here is: How are we to conceive of this world of real 'Vorgänge' and the real self? We appear to be walking among *noumena*; how shall we conceive them? Do they really exist? and if so, in what senses of the word? What is a 'Vorgang,' and in what terms shall it be thought? Is the real Self anything when we have abstracted from all consciousness-contents and their interrelations?

To these questions Professor Lipps furnishes an answer; but it is, I think, an answer which suggests a new question. To this new question I shall recur in a moment. A careful reading of the 'Leitfaden' makes it very clear that it would be doing the author an injustice to assume that his realities are *noumena* in the usual sense of the word. We find that the 'force' which the 'Vorgänge' appropriate is not an occult something which must remain indescribable. It is measured by the degree to which certain experiences seem determinative of the course of our mental life. We are told that the substance or substrate, the real self, is a permanent real 'etwas' necessarily thought with the empirical self, given in consciousness, as its 'ground'; but we are also told that this statement contains nothing contradictory to Wundt's doctrine that the soul is 'das seelische Geschehen selbst.' This sentence, maintains Professor Lipps, can not mean that the soul is this or that single psychical occurrence, or the mere sum of such occurrences; but it must mean that it is the 'orderly connection of such occurrences in an individual' (p. 120). And this 'connection' (*Zusammenhang*) is, he holds, notwithstanding it is something new and peculiar, still a something only by an abstraction to be separated from the elements which enter into it.

But what are the occurrences that we thus unify, the 'Vorgänge'? We gain a better notion of what is meant by this word when we turn first to the realm of the material. What is 'das materielle Geschehen'? When a movement takes place, what is it that moves? We say, Matter. But what is this matter? It is a mere *x*, that contains in itself the possibility of motion. The orderly connection of material occurrences is nothing else than an orderly connection of possibilities. But what is

matter a possibility of? There is but one answer: It is a possibility of *phenomena*, of conscious experiences. We first reach actuality (*Wirklichkeiten*) when we are face to face with phenomena. Matter, in itself considered, is a mere limiting notion, an imaginary quantity (p. 337).

And the same is true of the psychical 'real.' "The 'real Self' is the nexus (*Zusammenhang*) of possibilities of a conscious life; and the single psychical occurrence (*Vorgang*) is a measure of the possibility that a definite conscious experience may come into being" (p. 338).

When we read such statements as these, the question to which I have referred above seems to present itself with a good deal of insistence. It is this question: If we are to begin and end in phenomena, in consciousness-contents, and accept them as the only actualities, regarding the 'realities' beyond them as mere 'possibilities,' may we not throughout limit ourselves to such consciousness-contents and the more or less complex relations between them? May we not look upon Professor Lipps's 'realities' as an hypostatization of such relations? They make their appearance in the early part of the book only to be absorbed and disappear in the latter part.

I suppose Professor Lipps would answer this question by saying that we can not get on without such realities, and that the psychologist only follows the lead of the physicist in making use of such conceptions. The question is a large one, and can not adequately be discussed within the limits of such an article as this. I have desired to present Professor Lipps's position, not to criticize it. But whether one sympathizes wholly with the position or does not, one must admit that the doctrine is developed in the 'Leitfaden' with admirable thoroughness. And one can not fail to note with interest the steps by which it is made to work out into a realm of real selves, standing to each other in a system of ethical relations, and supported by a 'World-self' which appears in each, and which, yet, is not to be confounded with any or all of its parts. Above all, one will be impressed by the elevated ethical and religious feeling which pervades the work, and which seems to make clear the source of the moral courage which has, for years past, enabled the author quietly to take his place upon the unpopular side of questions which have stirred public feeling; a courage which has had a quickening effect upon many in the city which is the scene of his labors.

We all have an intellectual ancestry of some sort. A reading of his book inclines one to think that Professor Lipps has inherited much both from Herbart and from Hegel. But as many roads lead to Rome, so one and the same outlook upon life may be attained by men who travel upon very different paths. I venture to think that some of those who regard Herbart as a delusion, and to whom Hegel is a synonym for all that is loose and vague in human reasonings, will, nevertheless, feel themselves in rather a close sympathy with the 'Weltanschauung' in which Professor Lipps's reasonings terminate. The moral of which reflection seems to be that philosophers should eschew dogmatism, and should keep their eyes well open to truths which historical accident has clothed in a strange or, to them, unattractive dress.

GEORGE STUART FULLERTON.

MUNICH.

The Meaning of the Psychical from the Point of View of the Functional Psychology. H. HEATH BAWDEN. *Philosophical Review*, May, 1904, pp. 298-319.

This article is a revision in part of the paper read by Professor Bawden before the American Philosophical Association, at the Princeton meeting. It is a noteworthy addition to his previous discussions of the functional psychology in the *Philosophical Review* and this JOURNAL.¹ Its purpose is to consider the 'meaning of the psychical in relation to that process of tension in experience which we have defined as the condition of consciousness.' To this end Professor Bawden points out, in the first part of his article, the need of a reconstruction of the concept of the psychical in view of the important recent advances in psychological science. These have involved a substitution of the genetic and functional mode of viewing experience for the analytic and structural. The validity of this latter mode is not denied, but is regarded methodologically as instrumental to the functional view.

From the functional standpoint, experience is viewed as a process, an action, which 'is as much action when it is conscious as when it is unconscious, but the conditions of conscious action are different from the conditions of unconscious action.' The conditions of conscious action are: 'the law of tension or obstruction in activity, and the law of habit or facilitation in coördination.' The law of tension states that acts are consciously performed only when there arises stress in adjustment and is illustrated by the whole of psychophysics. "The whole study of sensation in modern structural psychology, especially in psychophysics, is really a technical investigation of the nature and limits of this tension. Genetic psychology is a study of the types of experience within which this tension arises and of the changes which one type of experience (such as instinct) undergoes in the process of emergence of consciousness (in impulse), and its transformation into another type of experience (habit). The so-called functional psychology is simply an attempt to relate both these forms of psychological investigation to the process of reconstruction of experience as a whole; it interprets structure in terms of function, and function in terms of the genesis and growth of structure." "We simply have one name (the term 'consciousness' or 'psychical') for describing action when it is tensional, and another name (the term 'habits' or 'physical') when it is relatively stable." The distinction between the physical and the psychical is only practical. The data of psychology become thus as objective as the data of any other science. To regard them as subjective involves the turning of a practical into an absolute distinction.

Since the distinction between the physical and the psychical is only functional, Professor Bawden contends, in the second part of his article, that the psychical can not properly be regarded as exclusively individual. The 'unique, inner, immediate, direct, unsharable experience is, after all,

¹ *Philosophical Review*, September, 1902, and May, 1903. JOURNAL OF PHILOSOPHY, PSYCHOLOGY AND SCIENTIFIC METHODS, February 4, 1904.

arrived at as inferentially as any other experience.' Consciousness is essentially social in character, and 'society is an organism in the same sense that the human body is an organism.' The individual simply represents a fragment of the universe, is an organ of the greater organism, society. His consciousness is simply the process of the universe when and where it is tensional. It is only the focus of this tension which can be called unique and unsharable. But even so, its uniqueness and unsharability are the same in character as those of any other individuated object in the universe. Indeed one may claim that the center of stress and strain, when the universe is tensional, passes out of the individual into the consciousness of others, as in the case of a person who is ill. "He really may be suffering very little; the focal point may be in the consciousness of his friends." Consciousness "is simply the one world we know in its process of reconstruction. The individual represents a node or nîsus of energies." The individual consciousness tends normally to exhibit its essentially social character, to bring to a focus the greatest range of social influences. "Extreme individuality or uniqueness we treat as a form of insanity."

The third part of the article is a criticism of the views of Professor Royce, Professor C. A. Strong and Dr. Morton Prince. As a result of this criticism Professor Bawden suggests two conclusions: first, that consciousness is to be correlated with nothing less than a complete organic circuit, involving the whole context of external nature as truly as the internal mechanism of the nervous system; second, that the condition of consciousness is a certain tension within this system or organic circuit, and that when this is absent . . . the psychical and the physical merge, consciousness vanishes." The article is a most interesting and suggestive attempt to break down that traditional view of consciousness which regards it as a collection of mental states set over against an external and radically different reality which these states can only symbolize or represent.

FREDERICK J. E. WOODBRIDGE.

COLUMBIA UNIVERSITY.

Historical Synthesis. FRED MORROW FLING. *American Historical Review*, October, 1903, Vol. IX., No. 1, pp. 1-22.

This article, appearing in a historical review, may well have escaped the attention from our readers that it deserves. Professor Fling gives a very clear and fairly complete summary of the controversy as to the distinction between history and natural science. Many have agreed with Buckle that historical synthesis can mean nothing but the discovery of the laws of human societies. On the other hand many have contended that history has a synthesis peculiar to itself, in which, instead of the discovery of laws, or of what is general in things or events, emphasis is laid on their uniqueness. But there was wanting any statement of what the historian positively attempts in this synthesis, until the appearance of H. Rickert's 'Die Grenzen der Naturwissenschaftlichen Begriffsbildung,' in 1902. Rickert's statement is the main theme of Professor Fling's article.

In general, the historian aims to record the combinations of individuals, not into a mere class, but into a more comprehensive individual, as in the case of nations, or such movements as the Reformation. Luther, for example, is important as a member of the movement of the Reformation, and therefore he and his work are historical individuals, as concrete, unique facts. In such 'teleological' combinations, "the smaller unity is related to the larger one until the limits of the visible universe are reached, for history deals with the whole of reality." As opposed to Münsterberg, Rickert retains the temporal character of history, and shows that causal connection is introduced in the interest of the continuity of the narrative. But in history the cause need not, as in mechanics, be equal to the effect.

Professor Fling believes that Rickert has fully justified the claim of history to a method of its own, distinct from that of the natural sciences, and more than mere 'microscopical research'; that he has grounded the logic of historic synthesis, of history as a science.

But it must be admitted that the concept of individuality, on which this logic is based is inadequately defined for that purpose in terms of unity and uniqueness. Because of this, when Professor Fling would give the bare form of the 'absolute historical concept,' he names one character after another, to the extent of nearly half a page, without any unitary conception, to correspond to the definite goal of natural science, the discovery of law. I have ventured to suggest elsewhere that the concept of *agent* is adequate to indicate the goal of the historian, and that *action* is the content of history. These terms, I think, imply the several characters that have, from time to time, been noted as essential to history.

Two such characters, at least, Professor Fling seems to slight. History is that past process which has brought about a present fact, known as the evidence. The historian searches for the thing that has effected that present, for the agent, that is, whose action, then, is that past reality, the content of the history. Agent and action express the fact that the ground of that past process must be the character of the thing that brought about the present evidence. Hence, we secure that property of freedom which Hegel noted as distinguishing the individuals of history; whereas those of natural science proper (at least, according to Rickert's logic), that is, the atoms, are determined by the totality of circumstances, having no nature of their own save a quantity, be it mass or energy. It is true that, if we exclude the world-spirit of Hegel, none of the agents of history are in fact altogether free; nor does history so present them. But it starts by conceiving them as active and notes further in what ways they are furthered or hindered by their relations to other agents.

Professor Fling does scant justice, I think, to the contention of Droysen and Münsterberg, that history above all informs us of the relation of our volitions to those of others, that it tells us of the 'moral partnerships' we have or may have. History as the search for and description of agents and their action tells us what manner of agents we are, and into what actions we enter or may enter. As action is a temporal term

its use saves us from the paradox propounded by Münsterberg of a *timeless* history, without slighting the essential truth of his position. Further, action is a term wide enough to include such agents as the earth, the solar system, or a nebula, to whose course in time the term history has been applied in common practice. We should return to Hobbes' distinction between history as a register of fact, and science as knowledge of consequences or laws.

Professor Leighton in the second number of this JOURNAL insisted that Rickert makes too fixed a distinction between history and natural science. And Professor Fling abates nothing of that fixedness. It would, I think, be in a measure obviated, if we were to describe history as dealing first and last with genuine agents; whereas, in natural science, the agency resides in the indefinite 'totality of circumstances' whose consent is necessary to the movements of atoms.

It seems to be owing to his indefinite conception of individuality, and to his still somewhat negative account of the purpose of the historian that Rickert contemplates the possibility of grasping human civilization as a member of the solar system (401). Professor Fling seems to consider that result certain. Yet nothing seems more certain than that the progress of one is to be absolutely fatal to the other; and if two individuals can not act towards one end they can not be conceived as one agent; nor can one history be written of them. It seems that history must leave us with a final multiplicity of agents.

Professor Fling's article is, I believe, the only summary of this important controversy that has appeared in this country, and we owe him many thanks for his analysis of the difficulty and of the solution proposed.

PERCY HUGHES.

COLUMBIA UNIVERSITY.

Nota psicologica intorno al significato dell' Argomento di Sant' Anselmo d'Aosta. R. NAZZARI. *Rivista Filosofica*, March-April, 1904, pp. 183-197.

The purpose of the author is not to discuss the logical validity of the ontological argument, but to point out that Anselm is better understood as the spokesman of a spiritual attitude than as the maker of a faulty syllogism, and to examine the psychological basis of the argument itself.

The author regards Anselm's demonstration as an original thought, not to be accounted for by previous discussions. It appear 'come affatto isolata e indipendente.'

Signore Nazzari declines to admit that the ontological argument has a purely practical character, that it is an instrument of conversion—suited to bring to the unbeliever the same conviction which the believer possesses as faith. The man who does not assume the existence of God can not be reached by arguments based upon a revelation and its consequences. Therefore, some have thought, Anselm invented the ontological argument to prove what was, to his own mind, quite certain without it.

Signore Nazzari hints, but does not seriously argue, that Anselm wished to fortify his own faith. The burden of proof is certainly upon him who

claims that Anselm's faith needed any dialectical prop. The sincerity of his 'regulative' point of view ('*Credo ut intelligam*'), need not be doubted.

Signore Nazzari is sure that Anselm was far from thinking he could pass from idea to existence with merely conceptual resources. "St. Anselm surely could not fail to observe that the various mental combinations of perceptions and representations may very well correspond to nothing objective. . . . Thought, however, ascending from particular to general, along the way of abstraction, reaches a point where it is obliged to stop, beyond which it can not advance (at least according to the Scholastics). There is, therefore, an ample region within which thought can be freely active without ever claiming that its concepts represent objective facts. But this is not true of the two limiting terms, sense-perception and the supreme being beyond which thought can not ascend (*quod maius cogitari nequit*), which can not fail to exist. Otherwise, complete skepticism would be justified. We can not doubt the existence of the perceived object, but if this is a real *datum*, the greatest possible being has, so to speak, a superior right to exist, because it ought to exist, since it has the character of necessity, or at least must have seemed to have it to the philosopher, because of an unjustified transition from logical (*concetti teoretici*) to moral concepts."

The confidence in God's existence rests thus upon a *sentimento*, and the ontological argument is the expression not of a practical purpose (conversion) nor of a purely logical interest, but of this *sentimento*. That which is bound to exist is the *quo maius*, the infinite, and its guarantee lies in the fact that to the imagination a thing seems greater if it exists than if it does not, and this increase includes an increase of value. Signora Nazzari thinks that this relation of existence to the estimate of worth can be verified in our own experience. When a surprising tale is found unexpectedly to be true, it seems to be suddenly possessed of a heightened value, due to the increased interest with which we regard it. The tale seems richer and more important. Given thus the instinctive feeling that existence does make a difference to the content of the object and to its value, the ontological argument is not improved as logic, but its vitality seems to be heightened.

The first step in constructing the argument is the substitution of '*id quo maius cogitari non potest*' for God. That the *quo maius* is equivalent to God and can be substituted for His name in a syllogism was one of the characteristic convictions of early mediaeval thought, especially among pious minds inclined to Realism. And Anselm was an extreme realist.

The syllogism in which Signore Nazzari states the ontological argument is as follows:

If the greatest possible being does not exist in reality, it does not exist conceptually.

It does exist conceptually.

It exists therefore in reality.

One may regret that Signore Nazzari does not criticize the syllogism

in greater detail. He rejects the ontological argument as a whole and hints that his objection is rather against the minor premise than the major. Anselm's critic, Gaunilo, denies the minor as well as the major premise. Gaunilo held that the *quo maius* had neither genus nor differentia, and therefore did not exist even in idea, and with this Signore Nazzari appears to agree.

W. T. BUSH.

BROOKLYN, N. Y.

JOURNALS AND NEW BOOKS

ARCHIV FÜR SYSTEMATISCHE PHILOSOPHIE, May, 1904. Band X., Heft 2. *Psychologische oder kritische Begründung der Ästhetik?* (pp. 131-159): J. COHN. - It is possible to establish critically an empirical universality for correct esthetic appreciations, but psychology can not furnish the basis for such categorical evaluations. In natural beauty, we should start from the behavior of the subject, in art from the nature of the object, to gain evidence of its esthetic character. *Sulla quistione del Genio* (pp. 160-165): V. ALLARA. - Largely a criticism of Lombroso's work. *Die Eigenart des Religiösen Lebens und seiner Gewissheit* (pp. 166-229): D. A. MÜLLER. - Religion is a universal disposition existing in every healthy man. Religious life is always a property of the individual heart which is not affected by occurrences, by historical presentations or by 'Weltanschauungen.' Atheism has and is religion. Religion's essential nature can only be sought in the perfect being of God. It is fashioned alike in the simple man and in the scientist. Education can neither give religion nor take it away. *Jahresbericht. La philosophie française* (pp. 233-241): C. BOS. - Reviews of: 'Psychologie du Rire,' par L. Dugas; and 'La Philosophie de Fichte,' par Xavier Leon. *Philosophy in the United Kingdom for 1902* (pp. 242-264): G. E. MOORE. - 'The Scope and Relations of Philosophy,' by H. Sidgwick is declared to be most important, but disappointing in its account of the relation of Philosophy to Psychology. Its insistence on the worthlessness of the historic method of attacking philosophic problems is commended. No other books calls for notice save 'Personal Idealism,' which is interesting chiefly because of the intentions of its contributors. Mr. Schiller's contribution thereto is utterly worthless.

NOTES AND NEWS

THE University of Wisconsin celebrated this year its Fiftieth Commencement. The degree of LL.D. was conferred upon Professor John Dewey, of Columbia University, and upon Professor E. B. Titchener, of Cornell University.

DOCTOR F. C. SHARP, assistant professor of philosophy at the University of Wisconsin, has been advanced to an associate professorship.

AMHERST COLLEGE has conferred the degree of LL.D. upon Professor James H. Tufts, head of the department of philosophy at the University of Chicago.

THE Station for Experimental Evolution recently established by the Carnegie Institution under its Department of Experimental Biology was formally opened at Cold Spring Harbor, Long Island, on the afternoon of Saturday, June 11. Representative students of plant and animal biology from many universities and colleges and the directors and other officers of the principal scientific institutions of Greater New York were among the invited guests, at whose disposal a special parlor car was placed by the courtesy of the Long Island Railroad. After a luncheon served at the residence of the Director, the formal exercises were held in the laboratory building of the Brooklyn Institute of Arts and Sciences. An introductory address was made by Director C. B. Davenport, who has resigned his associate professorship of zoology in the University of Chicago to take charge of the station. An historical address followed, by Mr. Walter R. T. Jones, of the Wamepex Society, who, in the absence of Mr. Townsend Jones, also presented the papers making over to the Carnegie Institution, for the use of the station, a fifty years' lease of land owned by the society. Dr. John S. Billings, as chairman of the executive committee of the Carnegie Institution, made the address of acceptance, in which he indicated the far-reaching significance of the studies proposed by the station, and their possible applications to philosophy and psychology, sociology and economics. Dr. Franklin W. Hooper followed with an address of welcome on behalf of the Brooklyn Institute. The scientific address, on 'The Aims of Experimental Evolution,' was made by Hugo de Vries, professor in the University and director of the Botanical Gardens at Amsterdam, eminent for original contributions to our knowledge of vegetable physiology and of the laws of heredity and evolution. As the author of 'Die Mutationstheorie,' the most important contribution to the literature of organic evolution since the appearance of Darwin's 'Origin of Species,' Professor de Vries was peculiarly qualified to speak with authority on the subject of his address. The leading problems of variation, especially susceptible of statistical investigation, and of mutation and hereditary transmission, requiring prolonged experimentation, were sketched in summary, and the methods of attacking them indicated. The first building of the station is in process of erection. It is to be 65 x 35 feet, of brick covered with stucco, two and one half stories high, and will be used as an administrative building and for certain breeding experiments. Experimental gardens have also been laid out, and some simple experiments with plants are already under way. Director Davenport will be aided by a permanent staff, consisting of Doctor Shull, botanist; Mr. Lutz, in charge of certain biometric investigations, and Miss A. M. Lutz, preparator, cytologist and secretary of the station, all formerly of the University of Chicago. There will be in addition a class of associates, including investigators in temporary residence at the station and others carrying on researches in experimental evolution under the auspices of the Carnegie Institution or the director of the station. The results of such investigations will be published by the Carnegie Institution.

THE JOURNAL OF PHILOSOPHY

PSYCHOLOGY AND SCIENTIFIC METHODS

THE FIELD OF INATTENTION—THE SELF.

THE readers of the preceding articles of this series have become familiar with the conception of human consciousness considered as a vastly complex system of minor psychic systems, which in any moment taken for study displays what I have called a given noetic pattern, in which certain psychic emphases are contrasted with an undifferentiable mass of unemphatic psychic parts.

The psychic emphases form what we commonly speak of as the field of attention; the undifferentiable mass of unemphatic psychic parts form what I have called the field of inattention. The general nature of this field of inattention I shall consider in this article.

1. In the first place it is to be noted that all parts of the whole nervous system are fundamentally of the same nature; that the activities of these several parts have a fundamental likeness; and that therefore the emphatic activities in a given neururgic pattern are fundamentally of the same nature as the unemphatic activities which, as we have seen, form an undifferentiable neururgic mass.

Assuming the validity of the conception of a thoroughgoing neururgic and noetic correspondence we are then led to say that the field of attention and the field of inattention are fundamentally of the same nature. This is an important point to which frequent reference will be made in what follows.

2. In the second place it is to be noted that each neururgic emphasis must spread its influence throughout the whole nervous system; and on the other hand, if our first point is well taken, the undifferentiable mass of unemphatic activities within the whole nervous system must at the same time exert an influence upon the neururgic emphasis, and must in some measure determine its form. That is, the neururgic emphasis and the neururgic mass must at all times be reciprocally efficient.

If, then, the theory here presented is valid, we must hold that the noetic emphasis in the noetic pattern of any given moment must influence the nature of the undifferentiable psychic mass; and that

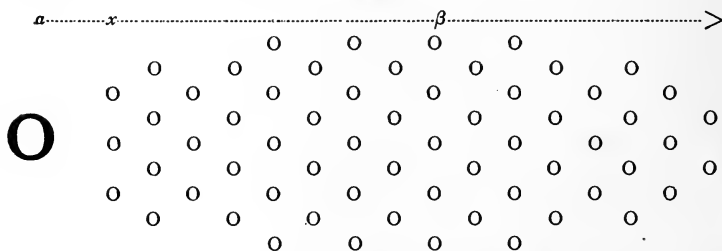
this latter in turn must influence the nature of the emphasis. That is, the field of attention and the field of inattention must, in all cases, be reciprocally efficient.

To these points we shall refer in articles to follow. Here I shall ask the reader to consider the nature of the field of inattention from a special point of view.

3. The field of inattention, as such, can never appear in the field of attention; it can never be presented, as we say, in reflection. For if it, or any part of it, became sufficiently emphatic to stand in contrast from the undifferentiable psychic mass, it would, in that fact, become part of the field of attention, and would no longer be of the field of inattention.

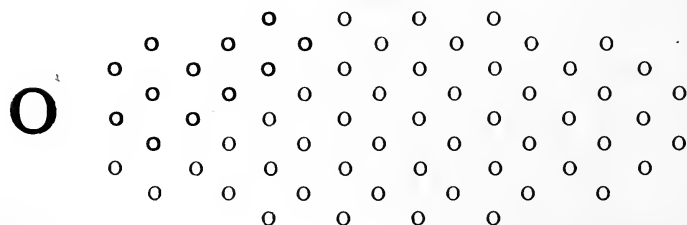
At first sight, therefore, it would seem that it were utterly impossible for us to gain any conception of the nature of the field of inattention through introspective observation, which deals necessarily with the field of attention only. But when we consider that under our view the field of attention and the field of inattention are fundamentally of the same nature, it appears not impossible that a simulacrum of the field of inattention, under certain conditions, might in itself become an emphasis in a given noetic pattern, and as such might be subject to study in our reflective states. Let us ask whether this is possible.

FIG. 1.



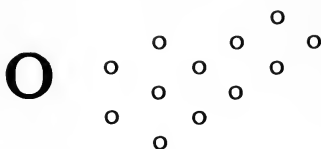
Let us suppose that in the diagram above the field of attention is presented by the large solid **O**; and the field of inattention by the whole mass of little *o*'s. Now it is quite conceivable that a noetic pattern might appear in a form which may be symbolized as follows:

FIG. 2.



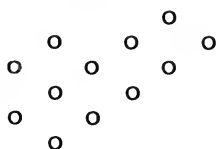
Here the field of attention would be complex and would be of the form

FIG. 3.



in which **O** would appear as an increment to the relatively undifferentiable psychic mass

FIG. 4.



which latter would be within the field of attention, but would appear as a simulacrum of the field of inattention (compare β in Fig. 1). We should in such a case have before us in attention a simulacrum of the field of inattention, and of an increment to it standing in contrast from it; the whole field of attention being a simulacrum of the whole state of consciousness in any given moment.

The question then arises whether we ever do have emphases in consciousness of complex form, in which what might normally be a simple emphasis does not stand alone, but without changing its essential nature appears as contrasted with a relatively undifferentiable psychic mass, which latter is also in attention.

At once we are ready to answer yes. We have such experiences in what we call states of self-consciousness, in which we seem to discern a presentation to what the common man calls his self, but what the psychologist of our day has learned to call his empirical ego.

During a large part of life consciousness displays merely a flow of psychic emphases, without any appreciation in attention of the contrast with an empirical ego to which these emphases accrue as increments. When we are not in reflective mood sensations, percepts, emotions, images, ideas, succeed one another without appearing in any way as *our* sensations, percepts, emotions, or ideas.

But when we become self-conscious these very same sensations, percepts, emotions, or ideas appear in attention together with something more; with them then appears also the empirical ego as a somewhat over against which they stand in contrast.

In cases of self-consciousness the presentation to the empirical ego, and the empirical ego as well, are both in the field of attention

—are both partial emphases within the total emphasis which appears in the noetic pattern of the moment.

It would appear, then, that in the empirical ego of attention we have a simulacrum of the field of inattention within consciousness.

But it is interesting to note that this empirical ego is very generally assumed to be a simulacrum of what we call the Self; and this notion has, I think, a very substantial basis.

The main ground for this assumption seems to me to lie in facts of objective observation. For in our daily life we constantly note the actions of men as they are influenced by what we call their characters, *i. e.*, by the nature of their Selves; and this when there are no indications whatever that the men observed are self-conscious. Then again we note their actions when they clearly indicate to us by their speech that they are fully self-conscious, *i. e.*, when they realize fully that their empirical egos are in some way related to the most emphatic part of the field of attention of the moment, in a form which they speak of as willing.

Now, noting these two sets of actions, we find that from a purely objective view no distinction can be made between them;¹ and applying the case to ourselves, we identify the influence of the empirical ego with the influence of the Self, and, therefore, look upon the empirical ego as a simulacrum of the Self.

I would, of course, not hold that this objective interpretation is explicit; but even though merely implicit, it has been woven into the warp and woof of our thinking by numberless experiences of life in the midst of our fellow men since the day of birth.

There are other grounds for this assumption which, however, I can not consider within the limits of this paper.

4. Now, if it appears, as we have seen, that the empirical ego of attention is a simulacrum of the field of inattention within consciousness; and if it also appears that the empirical ego is a simulacrum of the Self, then evidently it is at once suggested that the field of inattention and the Self are one and the same thing; that what we have been describing as the rest of consciousness—as the undiffer-

¹ This is clearly seen in the fact that our cleverest practical men of affairs have failed to discover any *objective marks* to distinguish what are known as involuntary from voluntary actions in our fellow men; as is distinctly indicated in every trial of a criminal. The fact that the man before the jury has murdered another may not be questioned; but only by interpretation in terms of their own experience is it possible for the jurymen to determine whether the truth is with the prosecution, which claims that the killing was a voluntary act (*i. e.*, self-conscious and involving the influence of the empirical ego); or with the defense, which claims that it was an act of self-preservation, purely instinctive and 'involuntary' (*i. e.*, not self-conscious, and influenced only by the nature of the man's character, or Self).

entiable psychic mass against which the emphases in attention stand out in contrast—is nothing more nor less than the Self.

On its face, this suggestion seems plausible. For it appears to be impossible to deny that the Self is part of consciousness. Yet it is not of the field of attention; and if it is of consciousness, and yet not of the field of attention, it must be either part of this field of inattention; or else the whole of, and identical with, this field of inattention.

It appears to me that there is much to be said in favor of the view that the Self is the whole of, and is identical with, the field of inattention. The arguments which make such a view plausible can scarcely be even indicated within the limits of a series of articles appropriate to this JOURNAL, and I shall make no attempt to present them in detail. I shall, however, ask the reader in this, and succeeding articles, to assume the validity of this hypothesis, and to note some of its consequences which appear to me to throw light upon certain perplexing psychological problems.

5. In this connection I should perhaps note that this Self, while of experience, is in no manner to be confounded with any concept of the Self, which, as such, is within the field of attention and must, therefore, be a form of presentation to the Self of experience.

The conceptual self may be assumed, if one choose, to refer to a certain core or essence which is left after we have cast off all the elements of the field of attention discoverable in the empirical ego; but even so, this concept remains a formula, so to speak, quite within the field of attention and in contrast with the true Self of the moment—the field of inattention—in relation to which it accrues as an increment.

6. The Self of the human individual as thus conceived is bounded by the limits of the individual human consciousness, in correspondence with the physical limits of the human organism. But those who have followed sympathetically what has been said in the previous article of this series will appreciate that a human consciousness is individual only in that it inheres in a broader system, although it is considered in and for itself. Its individuality is constituted by the intimacy of the integration of its parts, but within some broader system. And so the Self, as part of that individual consciousness, is in its very nature involved with other consciousnesses, attaching to some, inhering in others of broader type; and its nature is in part determined by this attachment or inherence.

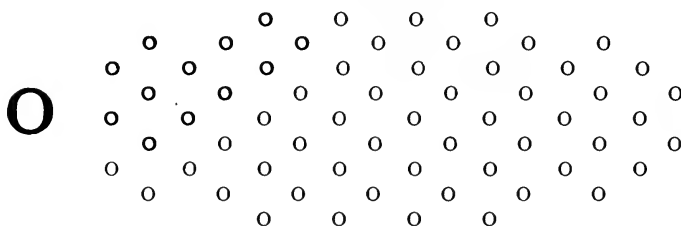
This finds its analogue in the form of our concept of the Self, and in the nature of the simulacrum of the Self—the empirical ego. For, as Professor Royce and others have taught us, our concept of the Self involves the existence of other Selves of a social, and I may

add of perhaps a still broader nature. A man's empirical ego also is what it is only because of the influence upon it of other conceived empirical egos, and of its reciprocal influence upon them.

7. Let us now turn again to the consideration of some special points in connection with the state of self-consciousness.

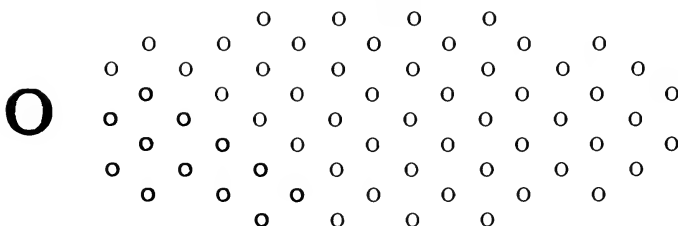
If the state of self-consciousness is of the nature described, viz., a complex field of attention in which a psychic increment accrues to a relatively undifferentiable psychic mass; and if such a state can be symbolized as in Fig. 2 above, which I repeat here,

FIG. 2.

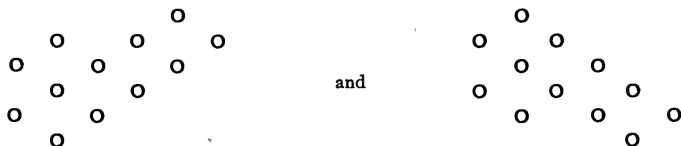


then there seems to be no reason why a state of self-consciousness should not be experienced which may be symbolized by Fig. 5 below.

FIG. 5.



The difference between the two total states symbolized by Figs. 2 and 5 respectively would lie, not in the increments to the empirical egos in the two cases, but in the empirical egos themselves



And this would, of course, lead us to expect that the same individual man might, under different conditions, experience differences of empirical egohood, a fact which is, of course, vouched for by cases of what we call 'double personality,' which at times occur spontane-

ously, and which at other times are produced artificially as, *e. g.*, by the hypnotist.

And, as a matter of fact, if the nature of the empirical ego has been properly described above, it can scarcely be possible that the very same empirical ego can appear in any two moments of an individual's experience; the most that we can expect will be that the empirical egos of successive moments will usually so completely overlap that the differences between them will not be discriminated; and such is the condition of normal life.

And if this is true, the abnormal cases of double personality should not surprise us; for in order to explain such cases we have merely to assume that the noetic patterns within the man's consciousness at different times involve psychic systems which are so diverse that each is complete in itself, as it were—so complete and diverse that it is possible for each system to develop its own peculiar empirical ego to which increments accrue; these diverse psychic systems being so thoroughly exclusive of one another, or so utterly incommensurable, if we may so speak, that it is impossible for the noetic emphases of one system to produce emphases in the other, the man being thus unable to recall in one state the happenings of the other state.

As a matter of fact, I think reference to his own experience must convince any man that each of us is a bundle of multiple personalities, although these personalities are usually not sufficiently diverse to cut our self-conscious life into diverse fragments.

If this is true, we should expect to find the normal case, where diverse but closely related multiple personalities are evidenced, shading off into those cases where the diverse empirical egos are completely disparate. And this we do find. I myself am a fairly good example of such a transitional case, as are all others who lead, as we say, a double life.

When in the routine of my professional practice I reach my business office of a morning, my personality is almost as diverse from the personality of the man now writing this psychological essay in the quiet hours of the night, as could be the case were the two personalities embodied in different individual men. But for the fact that the outward appearance, and certain mannerisms, of the person in the architect's studio, and of the person in the student's library, are the same, it would never occur to an observer of the two that they were embodiments of one and the same personality; so diverse are the reactions of the two men under the different conditions, and even to what appear to be quite identical stimuli.

But if our view be correct, then we ought to expect at certain times to recognize *the coexistence* of diverse empirical egos in one

moment's experience; and that this occurs I think is conclusively shown in every-day life where a man compares the impulses followed in the actions of a past moment with those which he wishes he had followed; that is when he thinks of the empirical ego which influenced his past act as quite diverse from the empirical ego of the moment of reflective contrition; which latter empirical ego he sets over against the former as his 'better self' or his 'true self.'

7. Let us now turn in closing to another point of interest in this connection.

If the state of self-consciousness is symbolized by Fig. 2 above, if it is a complex field of attention in which a psychic increment accrues to a relatively undifferentiable psychic mass, then it would appear probable that occasions might arise when this psychic mass, as per the symbolization in Fig. 4 above, might appear in attention without its increment *O*. Then we should not note the appearance of an empirical ego in contradistinction from its increment; but we should note the existence of the mass in itself, with characteristics which bind it closely to what we know as the empirical ego when fully developed self-consciousness exists. This special experience in which the matter in attention is the psychic mass only of what may become the self-conscious state, is, in my view, what is commonly described as 'feeling.' By general agreement this so-called 'feeling' is a vague, scarcely differentiable, psychic mass, the most marked characteristic of which is what we call its subjectiveness, which subjectiveness can be naught else than a community of nature with the more definite empirical ego of clearly self-conscious states.

The 'feeling attitude' is the attitude of the empirical ego, not yet become explicit, as is shown by the ease with which mere 'feeling' gives place to the clearer empirical ego, and by the likeness between the special efficiency of 'feeling' and the efficiency of the empirical ego when the latter does become explicit, a likeness which must be recognizable by all who indulge in introspection.

HENRY RUTGERS MARSHALL.

NEW YORK CITY.

AN EXPERIENCE AND AN INQUIRY

IT is entirely probable that the rather simple experiences of which I wish to speak here are in no way uncommon. Still, since I am unacquainted with any account of them, I venture to describe a typical instance, at the same time expressing the hope that readers of this JOURNAL who have similar experiences will also make them known. The experiences referred to display in a special manner the influence of *unnoticed* impressions. And their chief interest to

the writer lies in the fact that they seem not unlikely to throw some light on certain of those phenomena manifested by hysterical patients, which believers in the 'subliminal consciousness' have classified as 'communications' from one conscious level to the other.

The facts are these. I frequently catch myself saying over with several repetitions the title of some book, or mentally speaking some name or phrase, the sensory source of which is not immediately evident. Ordinarily this happens when I am at my desk and when, reflecting upon some matter, I allow the eyes to wander freely about. Almost invariably I find that these mental images are the verbal reproductions of printed or written words that have fallen within the field of vision, of the seeing of which there is, however, not the slightest recollection. The point of the matter is, then, that whereas the unnoticed impression was *visual* in character, the imagery that appears in consciousness is of another variety, namely, in this instance, *verbal*. Let me cite a case from my notes taken immediately after one of these experiences. On my desk there is a pigeon-hole case in one compartment of which was a pile of sheets covered with references to the literature of various topics. Upon these a roughly folded piece of newspaper had been lying for several days. This had been somehow pushed aside over other material lying near, and in an inattentive manner, while thinking of other matters, I pulled this piece of newspaper about and straightened it up over the reference sheets. In a few seconds—perhaps ten—I found myself saying mentally, 'Gustavo Tosti, Gustavo Tosti.' I began to wonder where I could have seen the name, and looked about the desk without thinking immediately of the circumstance described above. Then it occurred to me that I had straightened the paper over the reference sheets. So I slipped this aside to look at the latter. I found one of the visible references to be 'Tosti—Social Psychology, etc.' The only consciousness to be recalled from the experience of shifting the papers was, beyond that fact itself, the verbal image 'reference sheets,' with no sort of particularization whatever. It is to be noted that the 'Gustavo' was added by central supplementing. This particular reference, it should be said, had occupied me somewhat about three weeks before.

Now, as far as the mere facts of the case are concerned, they are, of course, entirely trivial. But from the point of view of the relation between the unnoticed impression and the images aroused, they are not without considerable interest.

Other cases of unnoticed but influential impressions will occur to the reader. Much of the imagery obtained by crystal-gazing seems to have this sort of origin. And, more commonly, the visions of dreams and of the hypnagogic state show revivals of sense experi-

ence that passed unnoted at the time. Similarly, too, one may have after-images of objects that are not consciously perceived. The 'delayed' after-image described some years ago by Scott and Bakewell in the *Proceedings of the S. P. R.* is a case in point, as is also the experience referred to by Hyslop in the *Psychological Review* last year (Vol. X., p. 296). I have frequently verified the observation of the latter writer, and have found within my field of vision the after-image of a certain curtain ring after turning away from the window when my attention had been occupied with outside happenings.

But, in all these cases, the imagery involved is seen to belong to the same department as the unnoticed impression. In the instances referred to both impressions and images happen to be visual. And it is just here that these experiences differ from those that this paper is concerned in reporting. For in the experience related above the unnoticed impression was *visual* in character, whereupon a translation of it in verbal terms appeared in consciousness. It is this appearance of a *translated* image that is significant.

It is not my purpose here to make any extended application of this type of experience to the phenomena of hysteria referred to above. Let me only suggest that there is a striking similarity between the phenomena here reported and those cases where the hysterical patient, though unable to feel three pressures upon the hand, may yet a moment later report the *visual* image of a figure 3; or those other cases where the verbal image of a name or fact can not be obtained, while yet the hand will write the same, as if *motor* images of the name or fact were actually present.

But I am not desirous of discussing these matters here. I should, however, be extremely grateful for any account from others of experiences similar to my own indicated above, particularly if the unnoticed impression and the translated image appear in other than the visual and verbal fields. This latter would seem to be the most natural mode of appearance, and, in fact, such close connections exist between our visual and our speech centers that it is highly probable that phenomena like the above occur frequently in the ordinary process of reading. The conditions are such, however, that the facts are not brought out sharply. It will be seen, therefore, that evidence of other directions of translation than from the visual to the verbal would have considerable interest and value. And I hope such evidence may be forthcoming.

The particular sense field which receives the unnoted impression, and the variety of imagery into which the translation is made, may quite probably depend upon the imagination-type to which the indi-

vidual belongs. And from this point of view alone it would be a matter of interest to compare observations.

A. H. PIERCE.

SMITH COLLEGE.

DISCUSSION

TWO ILLUSTRATIONS OF THE METHODOLOGICAL VALUE OF PSYCHOLOGY IN METAPHYSIC

THE doctrine which I wish to illustrate admits that psychology and metaphysic represent distinguishable points of view in philosophy, and asserts that their distinctness must be kept in mind in the treatment of either. It maintains, however, that such a relation exists between the two as permits psychology to play the important rôle of furnishing clues to metaphysic for the statement and solution of its problems. As an example of the difficulties into which metaphysic inevitably runs through failure to adequately appreciate the methodological value of psychology, I shall take Mr. F. H. Bradley's 'Appearance and Reality.' On the other hand, Professor Royce's article, in the March (1904) number of the *Philosophical Review*, furnishes a good illustration of a misapprehension which is likely to arise as to the outcome of a philosophy employing psychology in the determination of its metaphysical insight, if the distinction between the view-points of the two disciplines be not clearly recognized.

The controlling conception of Mr. Bradley's essay both as to method and problems is to be found, I believe, in Chapter XV., entitled 'Thought and Reality.' Having concluded, as the outcome of the criticism embodied in the first part of his volume, that reality must, ultimately, be interpreted in terms of experience, having defined experience, carefully, in an objective manner, *i. e.*, as the common denominator of all things real, and having, by this means, freed his theory from possible subjective idealistic and solipsistic misconstruction (pp. 145-146), Mr. Bradley proceeds to the investigation of the part played by thought in experience. To the methods and results formulated in this analysis he constantly returns in the remaining sections of the book. What, then, is thought, and how is it related to reality? In answer to this question Mr. Bradley distinguishes three fundamental phases of experience. First, there is sensibility with its potentially infinite but totally undefined content. Second, experience reflectively mediated and defined in determinate but abstract and fragmentary existences and contents. Third, an all-inclusive absolute experience in which all possible characteriza-

tion in terms of existence and content is exhausted in an immediate reality which transcends the reflective form. Thought occupies, accordingly, a mediating position between reality conceived as immediate but undefined experience and reality conceived as immediate and exhaustively defined experience. The metaphysical bearing of this conviction appears in Mr. Bradley's treatment of truth and reality. To both there are degrees varying indefinitely from the merest transformation of sensibility to the all comprehensiveness of the absolute. In each we must accordingly distinguish a proximate and an ultimate form. Truth, as proximate, consists of the fragmentary existences and contents in which the discrepancy of finite ideas to reality is embodied. As ultimate, truth consists in the essential harmony of idea and reality in the absolute unity where all discrepancy is overcome. Reality taken in its proximate form turns out to be appearance. Everything is real but not everything is self-consistent and able to stand on its own foundation. Whatever leads beyonds itself, by way of either internal or external complement, is appearance. Its value and standing, as reality, are determined by the amount of transformation or complement it must undergo before it could become self-consistent and independent. True or ultimate reality consists in an all-inclusive absolute experience which unifies and brings to rest, in an immediate way, all finite strivings by way of ideas and appearances. Taking truth and reality together, as results mediated by a single process, we are brought to the following conclusion. Thought is a reflective endeavor to exhaust and to reconstruct ideally the richness of sensibility. On its analytic side this process gives rise to a system of existences or differences: as synthesis it produces a system of unifying relations or meaning. The differences and relations, however, transcend themselves both in principle and in detail. The more we discriminate, the more we find there is to discriminate: the more we coordinate, the more complex the relationships appear. Furthermore, existence and content collide as such, and demand a larger whole in which they may be included and their mutual discrepancies set aside.

Consequently, a two-fold difficulty awaits Mr. Bradley's system in its final result. First, it provides no criterion for the discrimination of truth from falsity in the fabrication of ideas. According to it, the standard of validity for proximate truth is to be found in ultimate truth. Proximate truth consists in the partial correspondence of finite ideas with infinite truth; proximate error in the lack of correspondence between the two. But in the nature of the case, the comparison of finite idea with infinite truth is impossible. The inevitableness of this result as to his method in general, Mr.

Bradley perceives, and hastens to counteract, by bringing forward a practical criterion for the evaluation of ideas. Harmony and discrepancy furnish a working basis sufficient to the needs of relative truth. Wherever ideas harmonize there is consistency, unity, truth; wherever they collide there is inconsistency, discrepancy, error. This departure from his strict doctrine does not advantage Mr. Bradley much, however, for when we examine into the nature of harmony and discrepancy, we soon discover that they are formal principles, and depend ultimately upon a positive character in ideas determined and validated some other way. Thus even relative truth must be denied to the fabrications of thought on Mr. Bradley's basis, and the conclusion reached that reflection is diseased throughout.

The second difficulty may be stated as follows. Even though truth could be relatively determined, and the appropriate degrees of reality made out for each appearance, we should still have to face the final result, that in the absolute, every truth and every appearance is so transformed and complemented as to lose its own distinctive character. The absolute contains every appearance, but in such a manner as to possess in itself a quality inaccessible to reflective thought. How then, we may ask, is the amount of transformation requisite to the determination of the comparative values of appearances to be made out? Without such determination higher and lower can, in fact, mean nothing. We have now seen, if our interpretation be correct, that Mr. Bradley's metaphysic ends in a veritable *cul-de-sac*, and that the root of the difficulty is his conviction as to the character and function of thought. The analysis which led up to his conviction, he conceives to be essentially logical, and the resulting metaphysical difficulties to be inherent. As a matter of fact, his metaphysical insight is conditioned by a psychological result with reference to the nature and function of ideas. Given his views of images and ideas as psychic events, and it is not difficult to trace their determining influence upon the logical *existence* and *content*, or the metaphysical *immediate* and *reflective* phases of activity, which play the controlling parts in his system.

For Mr. Bradley, the primary form of mental activity is a species of 'undifferentiated sensory continuum' in which event succeeds event without any interruption to the continuity of the activity, or any awareness of the discreteness which the successive events exhibit. Into this continuity discreteness creeps as the expression of unknown conditions. The effect is two-fold. The continuity of psychic events is broken up into a series of discordant factors, and a response is called forth on the part of the psychic process as a whole by way of reorganization. The discordant factors are what we know as

images, their attempted reorganization into a stable whole, what we know as ideas. The psychic origin of thought, consequently, is to be found in the diremption of the original sensory continuum and its objective in the reestablishment of a continuum like unto the first. Inasmuch, however, as new factors are constantly being discriminated, the hope of reaching the goal of a completely unified experience seems unattainable. It remains, therefore, as an ideal which guides the progressive development of thought.

The logical outcome of this psychological conviction is the contention that the development of the subject and predicate of the finite judgment exhibits the general forms through which we become aware of the features of the all-inclusive judgment or completely organized meaning which constitutes the true objective and ideal of thought. Metaphysically, we have traced its influence in the conception of thought as the mediator of varying degrees of truth and reality lying between an undifferentiated sensibility, upon the one hand, and a completely differentiated absolute experience, upon the other.

If, then, it be true that, despite Mr. Bradley's warnings to others, the cast of his own metaphysical doctrine has been fundamentally influenced by his psychological convictions, it may also be true, that the clue to the solution of his difficulties may be found in psychology. With this in mind, we shall, *first*, replace his psychological analysis of the nature and function of thought by another which seems more true to fact, and, *second*, enquire what metaphysical value this insight has.

Briefly stated this conception is—thought is the form of reaction which any moment of experience exhibits in stimulating, predicting and realizing a further moment of experience. This process may be regarded from two points of view: first, as a set of factors coordinated in effecting a specific result, second, as the single experience to whose realization the factors are coordinated. For example, I judge that a piece of paper is before me. The activity of seeing stimulates a further set of experiences (memory images) which react into it after such a manner as to project in my mental view an anticipation of the experiences of touching, seeing, etc., possible to be realized through the active cooperation of experiences of movement as to arms, fingers, eyes, etc. The test of the validity of my judgment and the objectivity of my supposed knowledge consists, in the nature of the case, in the possibility or impossibility of realizing the specified experiences as anticipated. This result holds whether the moment of experience be relatively simple or complex. At one moment, my activities may be concentrated in a very narrow focus, at another, their sweep may be broad. In either case, knowl-

edge exhibits its method and function in the transformation of one moment of experience into another.

The essential differences of this conception of thought from that of Mr. Bradley are two: (1) The objective of ideas is not a whole which lies outside the range of the momentary needs and activities of psychic life, but one so specified and defined as to be capable of attainment. (2) The test of the validity of conceptions, consequently, lies within and not without their function: it is material and not formal.

If, next, we enquire into the origin of knowledge, we find its source in the fact that psychic experience is in constant process of transformation. What Mr. Bradley takes to be a misfortune of psychic states, is really their normal condition. A pure, undifferentiated continuum there appears to be none, but rather a process, in which forms of coordinated experiences tend constantly to take on other forms. In thought this process is consciously controlled. And what is meant by the words 'consciously controlled' is, that, in the function of knowledge, experience is able to predict and to direct the character of the transformations which it undergoes. These transformations exhibit two general forms: first, those in which the psychic moments utilize idea-instruments already fashioned and adjusted to the realization of specific experiences; second, those in which psychic instruments are constructed to meet the demands of novel situations. And the second of these forms appears to be the more fundamental; consequently, knowledge may be said to arise out of an inherent tendency of psychic activities to differentiate novel situations. The presence of these novel situations constitutes the problem of knowledge. Their resolution into factors and results consciously controlled, is its objective. We may emphasize this latter point by noting an objection which might be brought against this point of view. It might be contended that, on the analysis given above, thought arises out of a coordination which, by that fact, must lie and continue to lie outside the range of thought. Such a contention would involve a misconception of the whole point of view. The relation of thought to the coordination out of which it arises, is such as to turn that coordination inside out, and to bring to light its innermost character. Furthermore, this thought enters into the coordination so intimately as to make it anew into a whole whose nature is definitely forecast both in general and in detail. This essential feature of thought is marked, psychologically, by the fact, that, in reflection, the tendency toward differentiation in the psychic process itself becomes self-conscious, and constitutes the possibility of the free expansion of psychic life in intelligently controlled action. This transformation of experience into a self-conscious process

through the constructive activity of thought we shall find to be of essential value in the metaphysical reconstruction to which we now turn.

In indicating the metaphysical value of our psychological analysis of thought, I shall take for granted the general standpoint of objective idealism as formulated by Mr. Bradley. Everything that can be called real is, at bottom, a form of experience. And experience must not be regarded as subjective idealism and solipsism regard it, but as the common denominator and constituent of all things real. Of it, subjective and objective are alike real forms, and the distinction of subject and object is not one, which, as a limit, is brought to knowledge, but rather one which, objective as it is, is developed in and through the process of knowledge. Assuming this general standpoint, we shall endeavor to indicate briefly the gains made for metaphysical method by our previous psychological analysis. First, we are enabled to appreciate the true objective of knowledge. It does not consist, as Mr. Bradley supposes, in an all-inclusive experience into which the passing moment may potentially be transformed, but in the determination of the character of the further experience into which and the conditions through which, respectively, any given moment of experience may be transformed. This holds true whether we regard the moment of experience as all-inclusive or as some fleeting factor within it. In other words, knowledge would mean just the same thing for an absolute as it does for the finite. The fact that an inclusive experience is complex, and the fleeting factor simple, makes no difference so far as the function and validity of knowledge are concerned. In either case, this objective of knowledge consists in the projection of a new situation for realization, and its validity lies in the accomplishment of the aim. Second, for this view, the dualism of idea and fact is overcome, and Mr. Bradley's various problems are set aside. We no longer deal with a whole of reality which lies beyond the determination of knowledge, but with one whose nature it is the function of knowledge both to determine and to construct. Every idea, therefore, which reaches its aim, and the various ideals which embody, in an organized way, the tested conceptions of men, are true of the innermost natures of the specific forms of reality which they profess to mediate. Third, the distinction of relative from absolute truth must vanish. The question of adequacy in ideas is not one pertaining to comparison by way of correspondence and complexity between finite and infinite conceptions. It is one of efficiency in realizing experiences desired. Fourth, the origin of knowledge consists, ultimately, in the fact that reality differentiates, but does so in such wise that its transformations are consciously controlled. This tendency towards differ-

entiation must be regarded as constitutional. The significance of this result is that the differentiation of new situations within the process of reality becomes the limit of ideas instead of the reverse being true. The upshot of the matter is that in the one case we are enabled to conceive of reality as continually and continuously differentiating and that in the other the exhaustive character of the closed system of ideas imposes a limit of such a character as to force the dilemma—either the system of ideas is not eternally realized in fact or if eternally realized there is no room for change and the world of events. Fifth, in knowledge, reality becomes conscious of its own character and method. Consequently for the conception of a blind pressure toward change we must substitute a constantly differentiating but controlling purpose. If, then, we view reality as an all-inclusive experience, we rise to the conception of a process which inherently takes on new forms, in which, however, these forms are not the expression of haphazard change but of change intelligently mediated in every detail and as a whole. The process, accordingly, must be defined as essentially purposeful or self-conscious. And we may delay here a moment longer in order to emphasize a point of distinction from Mr. Bradley. Because finite ideas, according to his theory, have their objective in a whole which if attained would engulf and transform them, he was forced to conceive the self-consciousness of the finite process as something which must also be amended and over-ridden in reality. On the other hand inasmuch as we have found that ideas maintain their identity with reality by actively constructing it we must hold that for knowledge self-consciousness can never be transcended, but must ever be emphasized.

We must now turn to a very brief consideration of what I believe to be Professor Royce's misconception of pragmatism. Perhaps the term is ill advised. If pragmatism can not possibly mean more than Professor Royce says it does, then a more truthful label should be devised for the so-called pragmatists. And so far as the label is concerned, I am not aware that, on this side of the water at least, it was self-imposed by the representatives of the way of thinking under consideration. However this may be, it appears to me that the label is not so opprobrious, if a few distinctions be kept in mind. And at this point, perhaps, I should say that I hold no brief for any man's point of view other than my own. I may have failed entirely to understand what the pragmatists have been aiming at, and I certainly do not care to burden any one but myself with what I have formulated above. This, however, I must say, that, whether for good or for bad, I have conceived myself to be working on lines similar to those followed by the pragmatists or instrumentalists, and

that unless I have been thinking entirely beside the mark, the conception of pragmatism given by Professor Royce is not adequate to the movement assailed. Speaking bluntly, he has demolished a man of straw, and this for the reason that he has failed to keep in mind the distinction between the psychological and the metaphysical viewpoints. Moreover, I do not mean that, for his own philosophy, Professor Royce fails to make the distinction; simply that, in his criticism of pragmatism, he does not credit its exponents with the distinction. Doubtless for an objective idealism which takes on pragmatic form, the distinction is more than usually difficult to make and to maintain. But so far as I can see, the instrumentalists have made and maintained it. I am the more sure of this inasmuch as it is easier to perceive the distinction as made by another, than to make it oneself, as I must now attempt to do.

For the idealist, reality is constituted as experience. But experience may be viewed from many points and have many different values correspondingly. For us the main points of distinction are those between a psychological and a metaphysical treatment of experience. *By psychology*, experience is investigated in the immediacy of its concrete fleeting moments as these reconstitute themselves in novel situations, and are examined without regard to the more permanent values which are exhibited by the process that mediates them. *By metaphysic*, on the other hand, experience is taken in a more permanent sense, as the common denominator and ultimate factor in all forms of reality, be their character or value what it may. So taken, experience is essentially objective, and the values which attach to it in knowledge must be taken as equally objective. Hence, when the pragmatist maintains that knowledge provides the conscious method or formula for transforming experience, he is not called upon to limit the result to inner or 'subjective' experience so-called. Such a contention fails to see that all distinctions (and among them the varying forms of subject-object reality) fall within the objective movement of experience, and are dependent for their origin and maintenance upon the objective function of knowledge. The critic of the pragmatic idealist appears to be full of the conviction that the pragmatist must set up psychic experience as a sort of entity, and must then confine knowledge within the magic limits of psychical insufficiency. He fails to see that experience, as psychic, is a form which it assumes only in and through the knowledge process. How, then, the pragmatist can fairly be accused of limiting reality to one of the factors which exist within its own complex movement is somewhat difficult to see.

Another objection which Professor Royce makes to pragmatism may be formulated in the question: How can ideas arising in differ-

ent minds have a common value and an objective basis? In answer to this, it may be contended that the pragmatist does not deny the complexity of the objective process of experience, or the presence within it of self-conscious factors. For each of these, the truth of its knowledge must consist in the attainment of its aims. Inasmuch, however, as all are organically related within a single process, the results attained under similar conditions must have a common value. Furthermore, this result does not necessitate that either the process or the ideas which intelligently direct its transformations should be static or eternally fixed.

We may conclude, therefore, that although psychology and metaphysics represent differing points of view in philosophy, none the less, their relations are such that, while inevitable confusion must result from a failure to keep their distinctness in mind, nevertheless, if we turn distinction into separation, and refuse to advantage ourselves of psychology in determining our metaphysical insight, we are sure, on the other hand, to suffer shipwreck.

SIMON F. MACLENNAN.

OBERLIN COLLEGE.

REVIEWS AND ABSTRACTS OF LITERATURE

Der Neo-Idealismus unserer Tage; ein Beitrag zur Genesis philosophischer Systeme. LUDWIG STEIN. *Archiv für systematische Philosophie*, August, 1903.

The justification for reviewing this article at this rather late date is that in the dilemma as to the nature of thinking in which the author places himself a sort of philosophical text is furnished. The title is attractive, but one finds no hatchet marks for guidance through the philosophical woods, and gladly emerges into the clear white light of the final page. As for argument, the article is a kinetoscopic presentation with a well-marked 'flicker.'

This dramatist of the Hedda Gabbler of the sciences, neo-idealism, wishes to portray this 'psychogenesis' as consisting in the determination of the historical appearance of the categories of 'substance,' 'quality,' 'state' and 'relation' *by their logical relationship*. Each age *thinks* the same problems from the view-point of one of these. The concept used by 'the thinking of to-day' is that of relation, since 'to think is to relate,' whence idealism and phenomenism, and *vice versa*. So for the Greeks it was 'substance,' for the Middle Ages the 'eternal qualities,' and later the 'state' of rest or motion.

The text-serving dilemma, then, is: *either thinking is always to relate*, and it is possible to *relate* in different terms, viz., of substance, of relation, etc., *i. e.*, these are symbols for specific relations between *things*, a knowledge of which is given by a specific thinking, relating, activity; *or*, at one time to think is to 'relate,' at another, to 'substantialize,' etc., so

that thinking would then either be of mere symbols, or of these plus transcendent processes, meanings, but, at any rate, of a quite transitory nature. According to the first major horn, it is to be emphasized that the relations which thought gives need not be the same specifically as those which make up the thinking itself as a relating process, and only after the nature of this latter has been determined is it justifiable to infer any other philosophical system than that of 'relationism.' And some of those who admit a universal 'relationism' need to be convinced that this is identical with either idealism or phenomenism.

On the other hand, if the first part of the second horn of the dilemma be assumed, that thinking depends wholly on the category, it is therewith acknowledged that to establish its permanent psychological nature is impossible. For, from the change in categories mentioned by the author, it follows either that thinking is itself in a state of change, whether it consist only of word-symbols or of those plus meanings (transcendent), or that, if change be denied and rather its permanence as 'relating' maintained, at other category-periods it must have been a *false process*, which is an absurdity.

The only solution of these difficulties is to be found in the view that the real thinking process is a relating activity transcending consciousness; that it determines, by unique correlation, all such ideas or conscious states as may accompany, and words as may symbolize it, rather than that it is determined by these; that it forms at the same time the *meaning* of these symbols in that, as a causal process, it mediates between the symbol-category and external reality.

The author himself, seemingly, has not the iota of an inkling of this view of the problem, but, without its solution, the meaning of his 'psycho-genesis' is not clear. But the position which the 'scientific' man takes, viz., that the categories of substance, state, relation, etc., refer primarily to the objective transcendent world, nevertheless implies it. Whether or not they are applicable to thinking as such is to be determined.

The grounds for the above view may be stated as follows: It can be established by self-observation that formulated judgments, sentences, such as are, for example, seen or heard, are *understood*, i. e., relate to their object, under two extreme sets of conditions with all degrees in between. In the one extreme the only conscious facts present are the word-percepts; no images of any kind to constitute the meanings are discoverable, either for the reason that they do not exist, as in the case ' $\sqrt{-1}$ is a surd,' or because there is not sufficient time given. But if understood, then the meanings are, nevertheless, present in some way, in fact non-consciously so, i. e., through a transcendent process, defining transcendent as all that which is not the present-given-content of consciousness.

The other extreme is that in which images constituting the meaning of the perceived words are easily presented, or in which, as in the 'ideo-genetic' thinking of artists the word-symbols are not used. But even these images are determined by unconscious conditions, so that it may be stated that the mediating process, whereby a judgment relates to its

object and its meaning is constituted, is a transcendent one, and that this judgment is true, only if the causal connection between this specific transcendent thinking process and the specific transcendent object or objects is a unique one.

The consequences resulting from this view are as follows: The word-category may vary from time to time, from person to person; different words may symbolize the same meaning, as, *e. g.*, words of different languages, and yet, whether a conscious image be given or not, the same transcendent thinking process take place, for the correlation between word and meaning is only a conventional one. On the other hand different word-categories may stand for specifically different objects through the mediation of specifically different events within the same transcendent thinking process; *i. e.*, all may be true; the world may be substance, and states, and qualities, and relations.. If these are laws of thought and categories logically prior to all experience, their operation is coincident with the working of a transcendent process, though they may subsequently receive a symbolization through the contents of consciousness.

To take the contradictory view, *i. e.*, to make, *e. g.*, the historically appearing word-categories determine the thinking process; from 'relation' to make this 'relating,' and, if one would be consistent, from substance he must make it 'substantializing,' etc., is to identify thinking with mere words and nothing more. Nor can this identification be escaped by appealing to the images held by some to be associated with these words; for, since, as we have seen, this appeal shows that such images are not always present, yet that a sentence is understood, that the real 'thought-judgment' is transcendent, it results in a disproof of the very premises that were started with.

This view, that thinking consists of mere words, easily disproved though it be, and absurd though it may seem, when stated so boldly, is perhaps the only one wholly consistent with the traditional view that thinking, knowing and understanding are wholly conscious processes; for in formulated thought it is the word alone that is without exception 'given' in *consciousness*. Accordingly to maintain that 'understanding makes nature,' that the world is a system of relations, because 'to think is to relate,' to raise 'consciousness to the highest carrier and dictator of all reality' results, consistently, only in the position that all things are determined by mere words. These become a sort of dictatorial *dei ex et in machinis*, things in themselves, monads.

The dilemma which is presented forces, accordingly, a choice between two views of thinking. If we deny that it is mere words we must accept it as either in whole or in part a transcendent, a correlating and not an arbitrary creating, process, and consider it as causally connected with other transcendent processes; constituting in this way, either in whole or part, the meaning of the word symbols, and not determined by them.

If this view be accepted, it is, furthermore, possible to conceive the transcendent thinking process as either absolute or permanent, or as itself changing and developing, though according to a law.

If the process remains generically the same, *e. g.*, if thinking is always 'to relate' causally and transcendently, then the historical appearance of different categories must mean, either that some of these are false, others true, or that each stands for some specific aspect of objective reality, so that all are true; 'objective truth' then remains absolute and permanent.

On the other hand as a specific transcendent process causally connected with other transcendent processes it may be that thinking itself changes and develops. No system of philosophy derived therefrom could then lay claim to permanence, although there would be a certain logic in philosophical change corresponding to the law of this development in thinking process. But even this law, inasmuch as it deals with the transcendent, could be determined only by induction, and, since to do this demands unproved principles of interpretation, would ultimately be dogmatic. Such a development in the thinking process itself is indeed quite possible, since as a transcendent and yet subjective process it is identical, to a large extent, with the physiological development of the nervous system and end organs. In fact, in order that thinking may fulfill its *biological function* as a factor in the adaptation of the individual to his environment, which results indeed from its being a causal transcendent process, it is even probable that such a change does take place. The true is, according to this view, the practical, *i. e.*, that which works successfully; and that alone does this which consists of two *specific* transcendent processes, the thinking and the external stimulus, uniquely causally connected. This holds good whether a conscious content be present or not.

This brief outline of the 'psychology of thinking' has been presented to show, if possible, that only after some such considerations have been made, can a position like that of our author, that the appearance of the categories at different periods constitutes a 'psychogenesis' of philosophical system, have anything more than a very general meaning. The analysis which he makes of it as the 'relating of subject and predicate' reveals the penetrating depth of the foundation upon which he and most others, *sic, sic*, base idealism and phenomenalism. Yet these are not accepted by hosts of scientific thinkers who would agree that 'to think is to relate' (in some way). The article is of value only in its negative suggestiveness that there are certain problems concerning thinking that have, as yet, scarcely been touched upon by philosophical criticism, which problems are usually obscured by the traditional dogma, generally considered to be self-evident, that thinking and knowing are wholly *conscious* processes. Only when the error of this view is realized, and the consequences resulting from the new position are fearlessly accepted, will there be progress. Until then we shall have an eternal rehash of 'consciousness the center of things,' of 'idealism' and 'phenomenalism.'

E. G. SPAULDING.

COLLEGE OF THE CITY OF NEW YORK.

Ein Beitrag zur Definition von Genie und Talent. VIKTOR FISCHER.
Annalen der Naturphilosophie, January, 1904, Vol. III., No. 2, pp.
 233-237.

The author's problem is a definition of genius and talent, and their mutual relations. His point of view is that of physical science, and he seeks an analogy to talent and genius, respectively, in the capacity-factor and the intensity-factor of physical energy. His conclusion is that genius and talent are not serially related, but are coordinate developments from the average human ability along different and independent lines.

The author begins with a definition of genius and talent opposed to his own, and which, in a way, forms the basis of the article in its polemical aspect. The quotation is from Doctor A. Reibmayr (*Politisch anthropologische Revue*, II. Jahrg., Nr. 8, S. 611), and roughly rendered is as follows: Talent is mental ability excelling the average of its own time and branch of art; genius is talent which possesses the gift of discovery, of creation in any branch of art. This is the serial view, genius presupposing talent and being a higher form of it.

The author's own position is introduced with a statement of the fundamental principle of energetics—that every form of energy may be analyzed into two factors, a capacity-magnitude and an intensity-magnitude—and with the announcement of his intention to apply this principle to mental energy. Ease of apprehension can be distinguished from its depth. They are unrelated. A man may be dull in the apprehension of a thought, and yet receive it to a greater depth than another who grasps it easily. Robert Mayer, the great physicist, is mentioned as a distinguished example of depth of comprehension without facility. Ease of apprehension gives us the capacity-factor, depth of apprehension, the intensity-factor of mental energy. The latter might be called mental power, 'Geisteskraft,' the former, mental receptivity, 'Aufnahmefähigkeit.' Of course, the best results occur when both genius and talent are united in the same individual, and this is the case with most great minds.

The capacity-factor is often highly developed among women, but the especial development of the intensity-factor is almost exclusively confined to men. Genius finds its expression in both thought and feeling, and so in all the arts and sciences from music to pure mathematics. Genius is not essentially pathological. Extreme sensitivity, however, and excessive activity under unfavorable conditions render the man of genius especially liable to mental abnormality.

The writer's own statements have been reproduced as far as possible that the reader may form an independent judgment. Is he serious with the concept of mental energy, or is it a mere analogy? If the definition of talent as ease of apprehension and skill in elaboration or rendition be accepted, the case of Mayer seems to show that genius and talent are different in kind rather than degree, and this is the point with which the author is most concerned. But has he given us a working conception of genius? Careful psychological analyses have revealed such great diversities of type, that some have despaired of finding common characters, at least between the extremes of feeling and intellect. The use of the

energy concept, it would seem, should presuppose such analysis and be based upon it. The article is very brief, and it is to be hoped that the writer will elaborate and justify his position more completely.

HENRY A. RUGER.

COLUMBIA UNIVERSITY.

JOURNALS AND NEW BOOKS

ZEITSCHRIFT FÜR PHILOSOPHIE UND PHILOSOPHISCHE KRITIK. Band 124, Heft 1. *Immanuel Kant, Ansprache an die Königsberger Studentschaft* (pp. 1-9): L. BUSSE. - Kant as 'der Lehrer im Ideal.' *Erkenntnistheorie des primitiven Denkens, Schluss* (pp. 9-24): P. BECK. - The roots of the time concept, of the sense of past and future reality lie in the distinction between the sensible and the 'übersinnlich' present. Concepts were first classed as intangible, then as oversensible, as non-sensible, and finally as subjective. Greek philosophers must be interpreted from this primitive standpoint. *Der Wert der Wahrheit, Schluss* (pp. 25-49): G. V. GLASENAPP. - The four criteria of the value of truth. The basis of this value lies outside of truth itself, in its relation to the absolute, to the religious view of the world. *Neues von den Werten* (pp. 50-58): H. SCHMIDKUNZ. - The psychology of values has been greatly furthered by Kreibig's 'Psychologische Grundlegung eines Systems der Werttheorie.' Especially, it substitutes for the false antithesis of egoism and altruism the supplementary interests for oneself as subject (hygienic), for alien subjects (ethical), and for objects as such (esthetic). *Bewusstsein und Ichheit* (pp. 58-79): G. ULRICH. - Everything is consciousness; but that is not something in one's head, nor is it the creation of an ego. Universal consciousness sets itself in a time and space order, in which the body occupies a central place, and is the organ of the efficiency of thought, joining sensible objects to my ideas. Thus is the self distinguished from the environment through will. The sensible world environs all individuals, but is itself embraced by my individual consciousness. The sensible qualities of things are their very substance, not signs of something beyond. Freedom of the will means that our actions are conditioned not only by natural laws but also by logical reflection, force of imagination, and by the law of the will of the individual which joins sensible existence with my idea of the action. *Bericht über philosophische Werke, die in englischer Sprache in den Jahren 1897 bis 1900 erschienen sind* (pp. 80-105): E. ADICKES. The following books are reviewed at some length: J. H. Bridges, *The Opus Majus of Roger Bacon*. B. Rand, *The Life, Unpublished Letters and Philosophical Regimen of Anthony, Earl of Shaftesbury*. G. S. Fullerton, *On Spinozistic Immortality*. B. Russell, *A Critical Exposition of the Philosophy of Leibnitz*. S. H. Hodgson, *The Metaphysics of Experience*. G. T. Ladd, *Philosophy of Knowledge; Outlines of Descriptive Psychology; A Theory of Reality*. W. Smith, *Methods of Knowledge*. H. Münsterberg, *Psychology and Life*. W. M. Bowack, *Observations on Method in Moral Science*. A. H. Lloyd, *Philosophy of History: Ein bisher noch ungedruckter Brief Kants V. J.*

1790: *Recensionen*. M. de Wulf, *Histoire de la philosophie médiévale, précédée d'un aperçu sur la philosophie ancienne*: T. ZIEHEN. B. Otto, *Lehrgang der Zukunfts-Schule*: T. ELSENHANS. R. Stölzle, *Av. Kollikers Stellung zur Descendenzlehre*: E. KÖNIG. C. Groos, *Der ästhetische Genuss*: J. WALTER. W. Schacht, *Nietzsche*: O. SIEBERT. H. Schell, *Religion und Offenbarung*: O. SIEBERT.

ARCHIV FÜR GESCHICHTE DER PHILOSOPHIE. April, 1904, Band X., Heft 3. *Hobbes-Analekten* (pp. 291-318): Letters not easily accessible hitherto, throwing light on Hobbes' life and character, are here printed and explained. *Ein bisher fälschlich Locke zugeschriebener Aufsatz Shaftesburys* (pp. 318-320): P. ZIERTMANN. *Über die Spuren einer doppelten Redaktion des Platonischen Theatets* (pp. 320-333): A. CHIAPELLI. - Part of the work was composed in Plato's youth; much was added by him some thirty years after. This line of investigation should be followed in other dialogues, especially the Republic. *Sur une erreur mathématique de Descartes* (pp. 334-340): P. TANNERY. - The third paper of a discussion on this point. *Die beiden Bacon* (pp. 341-348): A. DORING. - Francis Bacon received the decisive impulse to his characteristic thought from Roger Bacon. *Locke, eine kritische Untersuchung der Ideen des Liberalismus und des Ursprungs nationalökonomischer Anschauungsformen. Fortsetzung, Schluss folgt* (pp. 349-370): G. JAEGER. - Locke affirms the right of the individual to personal property to be absolute, in contrast with Hobbes. The state merely assures the natural rights of man. Absolute power is transferred from the state to society with its privileged classes. The result was the downfall of clerical influence. *Die Lehre von der Bildung des Universums bei Descartes in ihrer geschichtlichen Bedeutung. Schluss* (pp. 371-412): A. HOFFMANN. - The extension of Descartes' cosmic theory of rotation to cover animal life. Leibnitz's criticism. Newton rejected the possibility of a mechanical interpretation of the universe, but it is revived by Buffon, Kant and Laplace. To modern ears it is a mere fairy tale as an attempt to explain the inconceivable wealth of nature.

Beck, Carl. *Röntgen Ray Diagnosis and Therapy*. New York: Appleton. 1904. 460 pp. \$4.00.

Binet, A. *Moralistes des 16^e et 17^e siècles*. Paris. 1904. 16mo. 471 pp. 3.50 fr.

Picton, Ja. Allanson. *The Religion of the Universe*. New York: Macmillan. 1904. 373 pp. \$3.25 net.

Thomson, Jos. J. *Electricity and Matter*. New York: Scribner. 6 + 162 pp. \$1.25 net.

Thomson, Sir W. *Baltimore Lectures on Molecular Dynamics and the Wave Theory of Light*. Baltimore: Johns Hopkins Press. 1904. 21 + 694 pp. \$4.50 net.

Waddington, Charles. *La philosophie ancienne et la critique historiques*. Paris: Librairie Hachette et Cie. 1904. xvi + 388 pp.

Walter, Johnston Step. *The Principles of Knowledge*. West Newton, Pa.: Johnston and Penny. New York: F. E. Grant. 2 vols. 8vo. Vol. I., 302 pp. Vol. II., 331 pp. Each Vol. \$2.00 postpaid.

NOTES AND NEWS

THE program of the International Congress of Arts and Science, to be held at St. Louis from September 19 to 25 of this year, has been issued. The purpose and plan of the Congress are set forth as follows:

"The idea of the Congress grows out of the thought that the subdivision and multiplication of specialties in science has reached a stage at which investigators and scholars may derive both inspiration and profit from a general survey of the various fields of learning, planned with a view of bringing the scattered sciences into closer mutual relations. The central purpose is the unification of knowledge, an effort toward which seems appropriate on an occasion when the nations bring together an exhibit of their arts and industries. An assemblage is therefore to be convened at which leading representatives of theoretical and applied sciences shall set forth those general principles and fundamental conceptions which connect groups of sciences, review the historical development of special sciences, show their mutual relations and discuss their present problems.

"The speakers to treat the various themes are selected in advance from the European and American continents. The discussions will be arranged on the following general plan:

"After the opening of the Congress on Monday afternoon, September 19, will follow, on Tuesday forenoon, addresses on main divisions of science and its applications, the general theme being the unification of each of the fields treated. These will be followed by two addresses on each of the twenty-four great departments of knowledge. The theme of one address in each case will be the Fundamental Conceptions and Methods, while the other will set forth the progress during the last century. The preceding addresses will be delivered by Americans, making the work of the first two days the contribution of American scholars.

"On the third day, with the opening of the sections, the international work will begin. About 128 sectional meetings will be held on the four remaining days of the Congress, at each of which two papers will be read, the theme of one being suggested by the Relations of the special branch treated to other branches; the other by its Present Problems. Three hours will be devoted to each sectional meeting, thus enabling each hearer to attend eight such meetings, if he so desires. The program is so arranged that related subjects will be treated, as far as possible, at different times. The length of the principal addresses being limited to forty-five minutes each, there will remain at least one hour for five or six brief communications in each section. The addresses in each department will be collected and published in a special volume.

"It is hoped that the living influence of this meeting will be yet more important than the formal addresses, and that the scholars whose names are announced in the following program of speakers and chairmen will form only a nucleus for the gathering of thousands who feel in sympathy with the efforts to bring unity into the world of knowledge."

The organization of the congress consists of:

Director of Congresses.—Howard J. Rogers.

Administrative Board.—Nicholas Murray Butler, president of Columbia University, chairman; William R. Harper, president of the University of Chicago; R. H. Jesse, president of the University of Missouri; Henry S. Pritchett, president of the Massachusetts Institute of Technology; Herbert Putnam, librarian of Congress; Frederick J. V. Skiff, director of the Field Columbian Museum.

Officers of the Congress.—President: Simon Newcomb, retired professor, U.S.N. Vice-Presidents: Hugo Münsterberg, professor of psychology in Harvard University; Albion W. Small, professor of sociology in the University of Chicago.

The speakers and chairmen in the subjects more especially covered by this JOURNAL are:

DIVISION A—NORMATIVE SCIENCE.

Speaker: Professor Josiah Royce, Harvard University.

Department 1—Philosophy.

Chairman: Professor Borden P. Bowne, Boston University. Speakers: Professor George T. Ladd, Yale University; Professor George H. Howison, University of California.

Section a, Metaphysics.—Chairman: Professor A. C. Armstrong, Wesleyan University. Speakers: Professor A. E. Taylor, McGill University, Montreal; Professor Alexander T. Ormond, Princeton University.

Section b, Philosophy of Religion.—Chairman: Professor Thomas C. Hall, Union Theological Seminary, N. Y. Speakers: Professor Otto Pfeiderer, University of Berlin; Professor Ernst Troeltsch, University of Heidelberg.

Section c, Logic.—Chairman: Professor George M. Duncan, Yale University. Speakers: Professor Wilhelm Windelband, University of Heidelberg; Professor Frederick J. E. Woodridge, Columbia University.

Section d, Methodology of Science.—Chairman: Professor James E. Creighton, Cornell University. Speakers: Professor Wilhelm Ostwald, University of Leipzig; Professor Benno Erdmann, University of Bonn.

Section e, Ethics.—Chairman: Professor George H. Palmer, Harvard University. Speakers: Professor William R. Sorley, University of Cambridge; Professor Paul Hensel, University of Erlangen.

Section f, Esthetics.—Chairman: Professor James H. Tufts, University of Chicago. Speakers: Mr. Henry Rutgers Marshall, New York City; Professor Max Dessoir, University of Berlin.

DIVISION D—MENTAL SCIENCE.

Speaker: President G. Stanley Hall, Clark University, Worcester, Mass.

Department 15—Psychology.

Chairman: Professor Noah K. Davis, University of Virginia. Speakers: Professor J. Mark Baldwin, Johns Hopkins University; Professor J. McKeen Cattell, Columbia University.

Section a, General Psychology.—Chairman: Professor Charles A. Strong, Columbia University. Speakers: Professor Harald Hoeffding, University of Copenhagen; Professor James Ward, University of Cambridge, England.

Section b, Experimental Psychology.—Chairman: Professor Edward A. Pace, Catholic University of America. Speakers: Professor Hermann Ebbinghaus, University of Breslau; Professor Edward B. Titchener, Cornell University.

Section c, Comparative and Genetic Psychology.—Chairman: Professor Edmund C. Sanford, Clark University, Worcester, Mass. Speakers: Principal C. Lloyd Morgan, University College, Bristol; Professor Mary W. Calkins, Wellesley College.

Section d, Abnormal Psychology.—Chairman: Professor Moses Allen Starr, Columbia University. Speakers: Dr. Pierre Janet, professor at Sorbonne, Paris; Dr. Morton Prince, Boston.

IN connection with the Psychological Medicine Section of the meeting of the British Medical Association to be held in Oxford this year from July 26 to 29, the following discussions have already been arranged by the Committee of Reference: "Criminal Responsibility and Degeneracy," introduced by Dr. Charles A. Mercier; "Heredity," introduced by Dr. J. Beard; "Dementia Præcox," introduced by Dr. Conolly Norman. The time remaining after the discussion on each morning will be devoted to the reading of such papers as may have been selected by the Committee of Reference. On each day there will be one or more microscopical demonstrations upon subjects connected with the pathology of the insane.

THE following changes in the department of philosophy at Yale University were announced after the commencement meeting of the Yale Corporation: The resignation of Professor Ladd was accepted to take effect July 1, 1905. The title of Professor Duncan was changed to professor of logic and metaphysics. Professor Sneath was transferred to a professorship of the theory and practice of education. Professor Sneath will organize, in connection with the work of his new department, a summer school, the first session of which will be held in 1905.

THE introductory volume of a 'Treatise on Cosmology,' by Herbert Nichols has been privately printed, and can now be purchased from the author, 219 Commonwealth Center, Mass. Price, \$3.50 postpaid.

DOCTOR T. DE LAGUNA has been appointed to an assistantship in philosophy at Cornell University.

It is announced that the club formed by a number of experimental psychologists at Ithaca last April, will hold its second meeting at Clark University during the next Easter vacation.

THE JOURNAL OF PHILOSOPHY

PSYCHOLOGY AND SCIENTIFIC METHODS

WHAT IS PRAGMATISM?

THE word pragmatism and the mode of thought for which it stands seem to have come to stay. However 'habitual' humanism may have become with Mr. Schiller, it still seems too 'sporadic and inchoate' with most of us, even after having read his book, to supplant the concise and persuasive term made current by Professor James. It is not, of course, a matter of words merely, but of the type of thought which they represent. For this reason it seems better to employ the term which seems most likely to become common as the designation of the point of view in question. Mr. Alfred Sidgwick in his review of Mr. Schiller's book¹ objects to the name pragmatism as unattractive, but it at least is distinctive, while, as Mr. Sidgwick himself says, "the essence of 'humanism' is not quite easy to find."

Pragmatism seems to appeal to the sense of humor of most of its critics. And the pragmatist is in no way disposed to object to this. As 'a critical study of first prejudices,' it is bound to elicit emotion of some sort, and it were better the feeling of the ludicrous than a more violent emotion. To some of its irreverent opponents, pragmatism seems to stand for the simple principle that any philosophy is better than none, since truth, after all, is simply what we need to live by. And the following are samples of its fundamental concepts: The test of truth is utility: it's true if it works. Hence the final philosophic wisdom: if you can't have what you want, don't want it. For man is the measure of all things. The universe ultimately is a joint-stock affair: we participate in the evolution of reality. Our action is a real factor in the course of events. In the search for truth, we must run the risk of error. Lies are false only if they are found out: a perfectly successful lie would be tantamount to absolute truth. We must 'will to believe.'

It is not the purpose here to examine the truth of any of these statements, but to indicate in a general way what, in recent discussions, the word 'pragmatism' seems to be coming to mean. It has

¹ *Mind*, April, 1904, p. 262.

seemed possible to talk glibly about pragmatism without any very clear idea of what it is. For most persons, who have not made a special study of the subject, the word appears to stand for any practical tendency in philosophy, any tendency of philosophy to conform to the needs and utilities of life in its fundamental principles. And, in a general way, this is a correct idea of what it represents. But to leave the matter thus is to leave it vague and obscure. Pragmatism already is beginning to have a history.

The term for Mr. Schiller in his 'Axioms as Postulates' and in his 'Humanism' seems to refer to any practical, useful or teleological reference in experience. In his conversations with Plato and Aristotle² Mr. Schiller credits the origin of pragmatism to a hyperatlatan god by the name of Iames. But he also reminds us that, in some of its basic principles, it is as old as Greek philosophy. Socrates, Plato and Aristotle were pragmatists in certain of their teachings. Like the theory of evolution, it has had its advocates from the time of the Greeks to that of Professor James. But it is only in recent years that this mode of thought has come into prominence as a philosophic method. The best brief characterization of pragmatism in Mr. Schiller's book is this: 'Science subordinates itself to the needs and ends of life alike whether we regard its origin—practical necessity, or its criterion—practical utility.'³ Mr. Schiller thus uses the term in a more comprehensive sense than does Professor James.

According to the original statement of Professor James,⁴ pragmatism is a principle of method for estimating the practical value and results of philosophical conceptions. The soul and meaning of thought, he says, can never be made to direct itself towards anything but the production of belief, belief being the demicadence which closes a musical phrase in the symphony of our intellectual life. Thought in movement has, thus, for its only possible motive the attainment of thought at rest. But when our thought about an object has found its rest in belief, then our action on the subject can firmly and safely begin. Beliefs, in short, are really rules for action; and the whole function of thinking is but one step in the production of habits of action. If there were any part of a thought that made no difference in the thought's practical consequences, then that part would be no proper element of the thought's significance. Thus the same thought may be clad in different words; but if the different

² Chapter II. on "'Useless' Knowledge" in 'Humanism.'

³ 'Humanism,' p. 105.

⁴ 'Philosophical Conceptions and Practical Results,' Address before the Philosophical Union of the University of California, published in *The University Chronicle*, September, 1898.

words suggest no different conduct, they are mere outer accretions, and have no part in the thought's meaning. If, however, they determine conduct differently, they are essential elements of the significance. . . . Thus to develop a thought's meaning, we need only to determine what conduct it is fitted to produce; that conduct is for us its sole significance. And the tangible fact at the root of all our thought distinctions is that there is no one of them so fine as to consist in anything but a possible difference of practice. To attain perfect clearness in our thoughts of an object, then, we need only consider what effects of a conceivably practical kind the object may involve—what sensations we are to expect from it, and what reactions we must prepare. Our conception of these effects, then, is for us the whole of our conception of the object, so far as that conception has positive significance at all. This is the principle of pragmatism.

Professor James applies this principle as follows: Suppose there are two different philosophical definitions, or propositions, or maxims, or what not, which seem to contradict each other and about which men dispute. If, by supposing the truth of the one, you can foresee no conceivable practical consequence to anybody at any time or place, which is different from what you would foresee, if you supposed the truth of the other, why then the difference between the two propositions is no difference—it is only a specious and verbal difference, unworthy of further contention. There can be no difference which does not make a difference. There is no difference in abstract truth which does not express itself in a difference of concrete fact, and of conduct consequent upon the fact, imposed on somebody, somehow, somewhere, and somewhen. It is true that a certain shrinkage of values often seems to occur in our general formulas when we measure their meaning in this prosaic and practical way. They diminish. But the vastness that is merely based on vagueness is a false appearance of importance, and not a vastness worth retaining.

Doctor King, in his article on 'Pragmatism as a Philosophic Method,'⁵ has criticized Professor James for not extending his pragmatism to the question of the genesis and evolution of knowledge in response to needs, as well as to the question of the validity of knowledge, the test of truth, the worth of the processes set up for supplying those needs. He maintains, virtually, that Professor James had only half done his work in stating the principle of pragmatism. A pragmatic philosophy, he declares, must have a chapter on the genesis and growth of knowledge, as well as on the criteria or tests of its validity.

⁵ *Philosophical Review*, September, 1903.

But now, by a curious and amusing confusion, this which Doctor King criticized pragmatism for lacking is assumed by Professor Dewey's critics to be the essence of the doctrine and is regarded as the main purport of the 'Studies in Logical Theory' of the latter. Here are two assumptions: First, that Professor Dewey is a pragmatist. Second, that pragmatism means something quite different from that which Professor James, as the originator of the view, says that it means.⁶ Both of these assumptions may prove to be true. But surely it is rather early in the controversy to assume that they are true, as Professor Dewey's critics have done.

We have seen that for Professor James pragmatism means a theory of the test of philosophical conceptions, a theory simply of the practical validation of knowledge. But pragmatism, by these writers, is interpreted to mean that all truth and validity is in response to needs; not only that a thing is true if it works, but because it satisfies a need or demand. That is, pragmatism now seems to mean, in the opinion of its critics, just what Doctor King criticized it for not meaning.

Doctor Sheldon, in his review of the book,⁷ assumes that the purport of the 'Studies' is a genetic account, a genetic functionalism. But this misses the whole point of the book. No one as yet has criticized the book from the point of view of that which it sets out to do. Assuming the continuity of experience and the specific reconstructive utility of thinking in the process of experience, the problem is to interpret antecedents, data, forms of thought, entities, existences, realities, from the standpoint of their definition in and through this process of transformation. It, indeed, asserts that the problem of the origin can not be dissociated from the problem of the nature of a thing, that questions of history and questions of validity presuppose one another. But it does not set out to give an account of the origin of anything. It is not a cosmology, as Professor James remarks.⁸ Starting with experience as we daily live it, it asks after the law of transformation or reconstruction of that experience. And having found a statement of the process which is, at least measurably, true, it seeks to show what is involved in this way of looking at experience, especially what it suggests with reference to the interpretation of logical categories in terms of the psychology of thinking. It is simply an attempt to get a method which will enable us to state the logic of experience so as to avoid the deadlock of the epistemological antinomies.

⁶ Professor James credits Mr. Pierce with the original statement of pragmatism, but the former first gave currency to the term.

⁷ JOURNAL OF PHILOSOPHY, PSYCHOLOGY AND SCIENTIFIC METHODS, February 18, 1904.

⁸ 'The Chicago School,' *Psychological Bulletin*, January 15, 1904.

Professor Baldwin, in his article on the 'Limits of Pragmatism,'⁹ also assumes that Professor Dewey is a pragmatist, and makes the further assumption that pragmatism takes one term (the needs) as fixed, and then proceeds to criticize this view for not taking the needs as functional. But this is just Professor Dewey's whole point in the first chapter of the 'Studies.' Professor Baldwin is using Professor Dewey's principle to knock over a hypothetical 'pragmatism' attributed to the latter. Indeed, it appears to the present writer that the defect of Professor James's pragmatism and of Professor Baldwin's æsthenomic idealism is just this which is attributed to Professor Dewey, viz., the setting up of a certain stage or phase of experience (the practical in Professor James's view and the æsthetic in Professor Baldwin's view) as fixed, instead of recognizing that both these belong to the cycle of experience and have existence in this cycle of experience only in a functional sense. Professor Dewey himself insists that the needs are not to be taken as fixed. They require to be explained as much as anything else.

The point of view of Professor Dewey's philosophy, happily, has received no single title up to the present time. One is not quite sure but what it is unpragmatic for its defenders to seek to name the 'new philosophical movement' so soon. There is always a suspicion that when a point of view becomes a school of thought with a definite name, its work is done, and it is on the decline. When it is precipitated and crystallized in specific terms, it is apt to be classified and laid away on a shelf in the museum of the historic systems. Certainly it is the very spirit of the new movement to keep all its categories organic and functional, and this, indeed, is one stumbling-block to many of its critics. They regard this as simply a screen for all sorts of obscurities, ambiguities and confusion. Nor can it be denied that this is a real danger. But when it comes to a choice between accurately classified fossils and the living organism of truth, some prefer the latter, even though it does demand some reconstruction of formal logic.

Pragmatism, through this very criticism of pragmatism, thus seems to be coming to be used in a more inclusive sense, and, in this sense, it seems to be fairly just to regard many writers, in spite of all their differences, as striving for a common goal—what may in general be called a pragmatic theory of experience.

That the word is coming to be used in this larger sense is borne out by the character of the discussions at the recent meeting of the American Philosophical Association at Princeton, where the general subject was one of the prominent topics under consideration. As the term was used on this occasion, it was taken to include in a

⁹ *Psychological Review*, Vol. XI., No. 1, January, 1904.

general way the so-called instrumental or functional point of view of what Professor James has called the 'Chicago school.' Professor Creighton in a paper on 'Purpose as a Logical Category'¹⁰ expressed the opinion that this movement, in late years, had assumed proportions that must be reckoned with, and, from the standpoint of analysis of the teleological arguments and the arguments from evolution advanced by certain of these writers, undertook to point out certain inadequacies and inconsistencies in the pragmatic standpoint. Among other things, he said that pragmatism does not do justice to the thought element in experience, and does not give adequate recognition to the category of self-consciousness. He further maintained that pragmatism is essentially individualistic.

The address of the President, Professor Josiah Royce, on 'The Eternal and the Practical,'¹¹ criticized the general standpoint of the pragmatist from much the same point of view, dealing particularly with the pragmatic test of truth and with the pragmatist's conception of the genesis and function of judgment. In a very interesting way and with much dialectic skill 'pure' pragmatism was shown to be inconsistent and even suicidal. It was admitted, however, that it is doubtful whether such a pure pragmatism anywhere exists. Of more weight was the able critique of the pragmatist's use of the evolutionary argument in support of his position. It was shown that the biological argument from evolution, upon which the pragmatist implicitly relies, is not the real basis of pragmatism but rather a corollary from it. This Professor Royce adduced as an illustration of the inconsistency of the pragmatic scheme. But, doubtless, the pragmatist would accept the alternative, and reply that evolution is simply an illustration of the pragmatic nature and development of experience. With the main thesis of pragmatism as an empirical philosophy of life, that thinking or judgment is the expression of a need, and its function that of working out a solution of the problem presented by this need, Professor Royce expressed himself in hearty agreement. It is only when the attempt is made to generalize this empirical and utilitarian method that he opposes it. As a practical working device for meeting particular situations, he granted it a certain intelligibility and efficiency. But, he said, pragmatism, thus conceived, is purely individualistic. It yields assurance and individualistic success, but it guarantees no objective or social certainty. Its standards are lacking in the essential character of a standard—transcendent reference and verifiability. Thus the consciousness of the 'ought,' Professor Royce maintained, implies and demands an objective, a social, indeed an eternal, conscious-

¹⁰ Since published in the *Philosophical Review*, May, 1904.

¹¹ *Philosophical Review*, March, 1904.

ness to give the particular and individual judgment that authority which it is the very nature of every judgment to express. For this eternal consciousness and standard of reference pragmatism leaves no place, hence its judgments are merely ephemeral and personal reactions to particular situations, lacking in that universality and necessity which give objectivity to the typical scientific or ethical judgment.

Both papers elicited considerable discussion and the presence of several representatives of the Chicago faculty of philosophy led to the discussion of a number of points raised in the two papers. The main points in this discussion made by those who, in a general way, defended the pragmatic standpoint, were to call attention to the tendency to conceive pragmatism in too narrow a way, in which thought and action (or conduct) are brought into opposition as two distinct spheres, instead of being merely relatively distinct moments or stages in a common process. And instead of being forced by the nature of judgment to postulate an absolute or eternal consciousness in order to give authority to individual judgments, a true view of the really social nature of consciousness (and thus of judgment) shows the necessity of stating the absolute itself in pragmatic terms.

In conclusion, a few things seem clear. The general movement which rightly or wrongly is coming to be designated as pragmatism is away from an intellectualistic and transcendental, toward a voluntaristic and empirical metaphysics. It is thoroughly evolutionistic in its general presuppositions, though critical in its exposition of details of this doctrine. And, finally, it seeks to interpret in dynamic and functional terms the valuable results of the analysis of consciousness which the structural psychology has given us, and turns, for its basic principles of interpretation, to psychogenetic science.

The movement in its broader scope thus includes not only the 'pragmatism' of Professor James and the 'Humanism' of Mr. Schiller, but also the 'functional view' of the representatives of the 'Chicago school,' the 'geneticism' of Professor Baldwin and 'the 'dynamic realism' of Doctor C. L. Herrick, which is being set forth systematically now for the first time in the pages of this JOURNAL. Mr. Stout's essay on 'Error,' in Sturt's 'Personal Idealism,' also contains much that is in sympathy with a pragmatic point of view.

H. HEATH BAWDEN.

THE ATTITUDE OF MIND CALLED INTEREST

WHAT is the difference in the two states of my consciousness which I try to describe when I say 'I attend' and 'I am interested'? The very phraseology would seem to indicate a most obvious difference, the first denoting an active, the second a passive, frame of mind. In the former, the ego, the whole of consciousness which makes up the acting 'I,' seems to *control* the situation, while in the latter, this 'I' seems to be at the mercy of the dominating idea. The difference appears to me to be a fundamental one, even if we include interest under attention in the broad sense, and make it an attitude of mind which, with voluntary and involuntary attention, shall form the trio of states opposed to the inattentive and indifferent states of consciousness.

Many psychologists and philosophers have written of interest as self-activity; for example, Herbart and the Herbartians; others have called it feeling, among whom are Lotze and his disciple Osterman. Hegel and Erdmann make it the world-forming principle of impulse and desire. Professor Dewey seems to unite the views of all these when he writes of interest: 'Any account of genuine interest must, therefore, grasp it as an outgoing activity holding within its grasp an intellectual content, and reflecting itself in felt value.' Ward and James speak of selective interest, the former making it practically the equivalent of 'subjective selection,' or 'organic selection,' as Baldwin calls it; while the latter identifies it with 'active attention' and 'spiritual spontaneity.'

One becomes aware, after a study of these various theories, that they have to do with a metaphysical thing, as the writers themselves often admit; but nevertheless they are exceedingly helpful and suggestive to the psychologist. As it is not the purpose of this paper to deal with a metaphysical force or activity, but with an actual state of consciousness which we daily experience, we must break away from the traditional theories, using them only in so far as they are descriptive of the mental attitude under consideration.

In discussing interest as an attitude we must also make a clear distinction between interest and an interest or interests. The ambiguity has arisen from not specifically recognizing that *an interest* is a train or group of thoughts which can be classified and described as other objects of knowledge, just as a memory, or a flight of fancy, or a course of reasoning, while *interest* simply means a state of mind which is present when an interesting object holds the field of consciousness. Ward has made just such a distinction between feeling and feelings:¹

¹ Ward, 'Enc. Brit.,' Vol. XX., p. 71.

“The entire issue here is confused by an ambiguity in terms that has already been noticed; pleasure and pleasures have not the same connotation. By *a* pleasure or pleasures we mean some assignable presentation or presentations which are pleasant,—*i. e.*, afford pleasure; by pleasure simply is meant this subjective state of feeling itself. The former, like other objects of knowledge, admit of classification and comparison; we may distinguish them as coarse or as noble, or, if we will, as cheap and as wholesome. But while the *causes* of feeling are manifold, the feeling itself is a subjective state, varying only in intensity and duration.”

The one word which most nearly corresponds to attention in its broad sense is concentration, the opposite of which is distraction. The characteristic of attention in a narrower sense is, to use Ribot's terminology, *monoideism*.² “Attention is the momentary inhibition, to the exclusive benefit of a single state, of this perpetual progression; it is *monoideism*.” Its most exaggerated form, *ecstasy*, is ‘extreme intellectual activity accompanied by intense concentration upon a single idea.’ A state of interest is also one of concentration, but its extreme is not that of ‘inhibition of all but a single idea.’ It is rather that of one idea controlling and marshalling whole trains of ideas as a general does his regiments. The difference is in the width of the field of consciousness. A habitually and keenly interested man is such as James describes: “Your great organizing geniuses are men with habitually vast fields of mental vision, in which a whole program of future operations will appear dotted out at once, the rays shooting far ahead into definite directions of advance.” Inhibition of consciousness by one idea marks attention peculiarly, while absorption of consciousness by one idea marks interest. Both show control, the one in suppressing consciousness, the other in arousing it. But what is it which inhibits and which arouses? Is it the same factor acting in different ways or the different factors acting in a similar or dissimilar manner?

Two sorts of attention are generally conceded, involuntary and voluntary. The former finds its idea to be attended to in the environment, in circumstances; while the latter selects its idea. In the one case the idea attended to inhibits consciousness without consulting it; in the other, consciousness wills or consents to be inhibited for the sake of the one idea. In a little less figurative language, the idea is in one case stronger than any other idea in consciousness; in the other it is not strong enough of itself but is reinforced by some other idea such as duty, expediency, etc. In involuntary attention the idea inhibits consciousness; in voluntary attention consciousness inhibits itself. The passivity of consciousness in involuntary atten-

² See Ribot's monograph on ‘Attention.’

tion is indicated by such expressions as 'I was thunderstruck,' 'I was amused,' 'I was frightened,' while the activity of consciousness speaks in the expressions, 'I attempt,' 'I ought,' 'I resolved.' The case of interest differs from both, while having also something in common. Just as in involuntary attention, it is the idea which controls, but it is also an idea which, having consulted consciousness, finds itself in harmony with the most powerful ideas which make up consciousness, and becomes the choice of consciousness, though there may be considerable opposition, as, for example, when a painful or disgusting subject interests one.

It is important to note that either of the states of attention may pass over into that of interest, the involuntary from the simple to the more complex, the voluntary from the complex to the more simple. Whenever an idea, other than the one which is the object of thought, is the powerful idea, then it is a case of voluntary attention. So soon as the object of thought gains this power for itself and controls consciousness by its own strength, then there is a state of interest. Involuntary attention may also lead to interest if the object which has taken possession of the mind is powerful enough to arouse ideas and relate them to itself. Interest is itself, however, also an initial stage.

Therefore we may say, in answer to our query, what is the arousing or inhibiting factor, that either the idea or consciousness itself may inhibit consciousness; but to arouse and control consciousness there must be a powerful idea which is also the choice of consciousness. We have, according to the above, in the first case, involuntary attention, in the second, voluntary attention, and in the third, interest.

It is this controlling strength of the idea, and at the same time the consent of consciousness, which gives to interest the appearance of both passivity and activity. It appears passive if we look only at the strength of the idea, and hence it has been classified as feeling. It seems active if we look at consenting consciousness as a whole, and therefore we find it called impulse, will, active attention. Some writers gauge the activity of the mind by the feeling of effort. Effort has the peculiar meaning of the expenditure of energy with difficulty, instead of the expenditure of energy in overcoming resistance, or doing work without regard to the ease of expenditure. Since one is not so conscious of the difficulty of expending energy in interest as in attention, *i. e.*, is not conscious of effort, therefore one underestimates the amount of energy that is really used in accomplishing work. The amount of energy expended does not cause the feeling of effort, but the disparity between the energy available and the resistance to be overcome. To take an example from the phys-

ical—the large horse, with the same expenditure of force, pulls up the hill without difficulty the same load that the small horse pulls with difficulty. We observe that the person with large and varied interests works with less sense of effort or difficulty than the man of smaller interests, in accomplishing the same amount of work. Or, put more technically, the mind which can give itself up to the control of powerful ideas can accomplish more than the mind which has several powerful ideas in opposition, or a few powerful ideas which wet-blanket every new powerful idea which attempts to hold the field. If the resistance along the line one is working upon in an interested state of mind becomes greater than the energy available, then the sense of effort is present. The state of interest may therefore be one in which one ‘feels’ the activity, if there is the disparity between energy and resistance; or it may be one in which one feels passiveness, if consciousness seems to be carried along by an extraneous force. Good examples of these different ways of viewing interest among recent psychological writings are found in those of Külpe and James.

Speaking of the affective value of the impression, which for him is synonymous with interest, Külpe says:³ “‘Interest’ is so constant a condition of the apperception of a particular conscious content that it has often been identified with attention itself. Hence we sometimes find it said that attention is simply a feeling. But, as an agreeable impression holds our attention as strongly as a disagreeable impression from which we cannot escape, while the state of attention may be the same in both cases, we may draw a sharp line of distinction between it and feelings. Moreover, interest, as ordinarily understood, implies that it is a pleasant feeling which attracts attention to the special content.”

James says:⁴ “These writers have, then, utterly ignored the glaring fact that subjective interest may, by laying its weighty index finger on particular items of experience, so accent them as to give to the least frequent associations far more power to shape our thoughts than the most frequent possess. The interest itself, though its genesis is doubtless perfectly natural, makes experience more than it is made by it.” In the former quotation the passivity of consciousness is thought of, and in the latter the activity of the idea is most prominent.

But notwithstanding that James regards interest as spiritual spontaneity he has written most suggestive things for our theory. He says in the chapter on association of attention as attitude: “In subjective terms we say that *the prepotent items are those which*

³ Külpe, ‘Psychology,’ Eng. tr., p. 439.

⁴ James, ‘The Principles of Psychology,’ Vol. I., p. 402.

appeal most to our interest. Expressed in brain-terms, the law of interest will be: *some one brain process is always prepotent above its concomitants in arousing action elsewhere.*" Treating interest as a state of mind we should say: in a state of interest, some one idea or train of ideas is always prepotent above its concomitants in arousing the contents of consciousness. What gives this idea its prepotency may be interest, in James's sense of the word, or it may be due to one or more of the facts of association; that does not concern us so much here.

Mr. Hodgson, whom James also quotes, has given a very good description of the state of interest:⁵ "No object of representation remains long before consciousness in the same state, but fades, decays and becomes indistinct. Those parts of the object, however, which possess an interest resist this tendency to gradual decay of the whole object. This inequality in the object,—some parts, the uninteresting, submitting to decay; others, the interesting, resisting it,—when it has continued for a certain time, ends in becoming a new object." In these lines we have emphasized the activity of the idea which is able to maintain itself against the suppression of itself by a mass or stream of other ideas.

Baldwin also has something to say of interest, which he capitalizes. Writing of accommodation he explains it psychologically thus:⁶ "As for accommodation . . . psychologically, it means reviving consciousness, concentration of attention, voluntary control,—the mental state which has its most general expression in what we know as interest. In habit and interest we find the psychological poles corresponding to the lowest and the highest in the activities of the nervous system."

There are two features in Professor Baldwin's account which correspond with the attributes we have given interest, namely, concentration of attention, used in the broader sense, and voluntary control. From his general theory of accommodation I believe I am safe in saying that it has also, in reviving consciousness, the third feature, the control of consciousness by the one idea, since he reiterates many times the fact that a single idea so powerfully influences the mind.

We feel justified in concluding, therefore, both from our own introspection and observation and from the writings of others, that there is a state or attitude of the mind coming under the head of attention in the broader sense, which neither involuntary or voluntary covers, and this we shall term interest.

A further reason for making this distinction might be found in the fact that there are three states to be distinguished in what has

⁵ Hodgson, 'Time and Space,' p. 266.

⁶ Baldwin, 'Mental Development,' p. 292.

been called distraction. There is first, vacuity or flatness, which is the reverse of involuntary or spontaneous attention seen in its extreme form in very young children or idiots. Again, there is the state of inattention proper, the contrast of voluntary attention, which indicates a state of consciousness in which various ideas merely flit through the mind, without logical order perhaps, at least very different in character and content. In a state of indifference, the contrast of interest, there may be a logical train of ideas but without any one idea controlling them. It may be a matter of routine, the same ideas having been present in consciousness so often that they can be present without any express consent of consciousness. The activity of consciousness is reduced to a minimum, though it is very different from the vacuity spoken of above. We have, then, the three sorts of 'distraction' states, vacuity or inattention, mind wandering or non-fixation of thought, and indifference or routine.

It is possible that the three forms of attention which I have presented may correspond to the three classes of will processes which Wundt describes, namely, impulsive, and selective, which latter has also a form which he calls choice. To these forms, Wundt says, passive and active apperception correspond, the last two will processes named corresponding to active apperception.⁷ "If one looks at the feeling side of the attention processes more closely, it is apparent that the same corresponds perfectly with the general feeling content of the will processes. At the same time it is clear that the passive apperception, by its very essence, corresponds to the simple impulsive action, the active on the other hand to the selective action. For in the case of the first, the unprepared psychical content, crowding itself upward, may be considered as one motive, which arouses the action of apperception without a struggle with other motives; and this finally is accompanied by that characteristic feeling activity which is associated with all will processes. In the case of active perception, on the other hand, other psychical contents with their feelings, which are the result of attention, always crowd up during the preparatory feeling stage, so that here the apperception which finally takes place appears as selective action; and in many cases, if the struggle of the rising contents is a clearly conscious one, it appears as an action of choice."

Thus we see that while Wundt clings to a dual terminology, he is really treating of three classes of psychical phenomena. He has not drawn his lines of distinction so closely as I have tried to do, nor do they correspond with mine in detail, but in the main there is coincidence in the conception of two classes of phenomena which have

⁷ Wundt, 'Umriss der Psychologie,' 1897, p. 257.

hitherto been included under the 'old-time, involuntary' attention.

Of course such a view of interest as this is somewhat new, and the foregoing exposition can only hope to be suggestive. A further and more exhaustive study of the subject will, I believe, greatly aid in classifying and explaining the phenomena which have heretofore been massed under attention or interest as suited the writers' fancy and terminology. It is hoped also that a clear description of the state of interest will account for the psychical phenomena actually observed without having recourse to such unpsychological terms as self-activity, self-realization, or consciousness of value, *Wertbewusstsein*.

LUCINDA PEARL BOGGS.

URBANA, ILLINOIS.

DISCUSSION

IMAGE OR SENSATION?

TWO recent articles on 'Organic Images,'¹ one by Professor Titchener, the other by Doctor Lay, have suggested a re-opening of the question as to the distinction between image and sensation. Professor Titchener criticizes in general the presumption that all sensations can be imaged, and throws considerable doubt in particular upon the existence of organic images in anything like the profusion and spontaneity with which they have been credited. He pleads for a more refined and systematic study of organic images, such as they are, with special reference to what organic sensations can be imaged, their mode of production, the significance of individual differences, the effects of practice, etc. He expresses a belief 'that organic images are always rather the exception than the rule'; 'that no single mind has any large variety of them,' mass results to the contrary obtained by questionnaires notwithstanding. I gather the impression that the organic image will bear watching; that on closer scrutiny it may, in some instances at least, turn out to be nothing but a sensation which has palmed itself off on a too credulous introspection as an image.

This article has called forth a rejoinder from Doctor Lay, who, without dissenting from the main contentions of Professor Titchener, brings into court a collection of introspective evidence reaffirming the existence of a large variety of organic imagery; *e. g.*, images of fatigue, nausea, slaking of thirst, rested feeling, oppression, relaxation, cork-cutting feeling, great height feeling, etc. "Hunger is the

¹ JOURNAL OF PHILOSOPHY, PSYCHOLOGY AND SCIENTIFIC METHODS, Vol. I, Nos. 2 and 3, pp. 36-40, 68-71.

only organic sensation," testifies Doctor Lay, "whose image I have at present any doubt about; and this is probably because I have not experienced that sensation for so long a time that I have quite forgotten what it feels like."

There seem to be three criteria of imagery working more or less clearly in Doctor Lay's account. The one that is most clearly stated refers only to imagery of any kind not organic and may here be passed over without further comment. The other two, as I understand them, could be fairly made to read as follows:

1. The criterion of an organic image is bound up in its own '*feel*.' It is recognized *per se* and without the mediation of any context. It is an emergence into consciousness of a 'disposition,' and is a matter of immediate apprehension. Just as the tone of a French horn, to borrow one of Doctor Lay's illustrations, is recognized for what it is without the intervention of any other form of consciousness, so an organic image has a quality of its own which is just as specific and immediate, an 'image-like timbre.'

2. The criterion of an image is, also, its incompleteness, its reduced character, its absence of definite localization, as compared with a perceptual or sensational experience.

To these two articles might, fairly enough, be allowed the claim that they represent positive scientific interests in discovering and investigating psychical data, and are not concerned especially with terms or distinctions. Yet it is pretty clear that they do afford at least an occasion for re-opening the question of classification. They have little, if anything, in common with the epistemological distinction between image, on the one hand, and sense impressions, on the other, which makes out the image to be a more or less inadequate, invalid copy of sense impressions. Nor do they appear to fall back on the biological or anatomical distinction between image and sensation which ascribes the image to centrally initiated excitations, and the sensation to peripherally initiated excitations. One is led to ask what would be the nature of a classificatory distinction which should be through and through a psychological affair.

I have no desire to crowd unwelcome constructions upon these articles. The thesis I have to present as affording a basis for a psychological distinction between image and sensation is simply this: that both image and sensation are abstractions, in varying degrees, from the stream of consciousness. More definitely, they are abstractions not in the sense of being necessarily unreal or arbitrary (though they may be unreal and arbitrary on occasion), but in the sense of being in contrast with the more usual flow of experiences—the flow of experiences in which is borne along the miscellaneous traffic of objects, persons, plans, ideas, satisfactions, disappoint-

ments, etc., and to which the descriptive term 'stream of consciousness' answers so closely. Image and sensation are also abstractions *within* as well as *from* the stream of consciousness, not merely because they are, of course, aspects of consciousness, but because they exhibit a characteristic property of consciousness, the selective, analytic property, which finds its most obvious expression in abstraction, discrimination, isolation.

To take up the matter of sensation first. The more any content of consciousness is isolated, the more sensational in quality it becomes. Pure sensation would mark the limit of abstraction. True, it is a limit which is never actually attained, but that need not prevent one from using the terms sensation and sensational to describe perfectly real and recognizable phases of consciousness. Even the loose and popular usage of these terms is in keeping with the definition. Such and such a piece of news is *sensational*, or such and such an event created a *sensation*. That is to say, it was an unexpected, startling break in the usual course of happenings; or it may have been something willfully perverted, torn loose from its setting, in order to stimulate the sensational form of excitement.

At the other extreme of usage is the discriminating procedure of the analytic psychologist. His analysis of consciousness into states of consciousness and, further, into the elements thereof, leads him inevitably to sensations and the study of sensations. The more he seeks to isolate a phase of consciousness, to dissect it out of its context, to expose its true and pure essence, the more clearly does the sensational quality appear. For example, few persons, I imagine, whose attention has not been especially called to the matter, discriminate brightness, saturation, and color tone in the ordinary perceptual experiences of color. By a skillful management of revolving discs, isolating and contrasting certain factors, a laboratory psychologist enables one to discriminate all three. Is there any doubt that just in proportion as any of these newly discriminated qualities comes to consciousness through analysis (through breaking up the original perceptual experience of color and setting off by itself a quality or content indifferently observed before, if observed at all) to that degree is the quality or content felt as sensational? To take another example. Under usual conditions the stimulus of the contraction of a muscle occurs at the same time with cutaneous and other sensory stimuli and is bound up with perceptual and ideational processes. It is a question whether most individuals know what a specific muscular sensation really is. The method is to anesthetize the cutaneous areas likely to be affected by the contraction of a given muscle and then to cause this muscle to contract by an electric stimulus. Again, is there any doubt that the consciousness so

aroused will be sensational in proportion to its isolation? It is a specific muscular or kinesthetic *sensation*.

The process by which a phase of consciousness gets a sensational value as a laboratory datum or artifact is similar to that by which sensation appears as a psychic reality in everyday, extra-laboratory experience. If it be true that the sensational quality characterizes the more isolated phases of any experience, then it is clear that it locates the more discrepant and problematic features of a given situation. The discrepant and problematic features so located by sensation are isolated, not in the sense of being irrelevant, but in the sense of standing over against some desired or customary activity. They are obstacles in one form or another. Hence, they have all of the felt reality, all of the immediate presence, which goes with the sensational quality. It is an *organic* break or strain that comes to consciousness in the imperative form of a sensation. Laboratory technique is, in this respect, the counterpart of the vicissitudes of life. Both give rise to isolated and to problematic elements in experience, which are located in and through the manifold of sense impressions. It is not merely that the laboratory furnishes various culture media, so to speak, for the development of various types of sensations. It does this and more. It carries on a sort of experimental morphology, creating the very structure of that which it may even boast to study as structural, and thus affording a clear, if unintentional, demonstration of how sensations arise, and what they stand for functionally in actual experience.

To return now to the image. Our thesis was that both image and sensation are abstractions, in varying degrees, from the 'stream of consciousness.' Pure sensation would be the limit. What degree of abstraction is marked by the image? My answer would be that the image is the content abstracted from past experiences in the form in which these are usually brought to consciousness to serve as means of dealing with problematic features located by sensations. At the same time, this abstracted content has a perceptual or ideational setting which helps to constitute it as an image. In other words, the image quality, the image 'timbre,' is a product both of the act of abstracting the content and of the setting or context that persists.

The image, even more than the sensation, is peculiarly the creation of the psychologist. It is born of the interest in the ongoings of the mind itself. It is the fruit of the impulse to observe, describe, and collect specimens of mental activity. But the image is more than a strip of birch bark, a pressed plant or a bird skin. The process of collecting it, of abstracting it, has given it a new characteristic. It is something different from an idea or an ideal, a rea-

son or a volition, because it is an aspect of any one of these, as the case may be, set off for the sake of appreciating its qualities *per se*; and the very act of consciously setting it off gives it a setting which helps to determine its character anew. Could you rule out the ideational and perceptual setting, your image would leave off being an image. It would become sensational in quality and value. Dreams, hallucinations never involve images, so far as I know, but sensational or perceptual realities. Of course I refer to the dream as it is dreamt, not to the dream in contrast to the waking reality. Here again the same point is in evidence. The difference between the dream as dreamt and the dream image is a magnification of the difference between thinking and the waking image. Just as the dream image is what it is because of its context in a world of present reality of which it was once felt to be a part, so the waking image is what it is because of the ideational and perceptual context of which it too was once a part.

This account of the image does but scant justice to the 'esthetic image' or to the 'working image,' coinages which I gratefully borrow from Professor Mead, though I am not sure my usage of them would be consistent with his. I have had in mind, rather, what might be called the 'cognitive image.' Yet all three types represent varying degrees of abstraction. The 'esthetic image,' if I may generalize from introspection, is an ideational content freed or loosed from reference to problematic realities, yet not thus abstracted for the sake of examining its content for its own sake, as is the case with the 'cognitive image,' but for the sake of realizing pleasurable activities, some of them, it may be, of an organic nature, to which the image is the indirect, but, at the time, the most available, if not the only available, stimulus. What some one has happily termed the 'reminiscent image' would be an instance. The 'working image,' I should say, stands for the least degree of abstraction of content from reference to problematic conditions. It is difficult to distinguish between the 'working image' and what is usually meant by the terms idea, plan, aim, hypothesis, consideration, etc. On the whole, 'working image' seems to be a more inclusive term than any of the latter terms from the standpoint of content and reference. It applies to an underlying stratum, so to speak, out of which these have developed. But the fact that these *have* developed out of this stratum makes the interest in it somewhat more remote, somewhat more geological. The image, then, whether 'working,' 'esthetic' or 'cognitive,' represents varying kinds and degrees of interest in setting apart the content of ideational processes.

To take up the problem as regards organic images. Images or sensations? This, again, I should say, would depend upon the

degree of abstraction. If the consciousness of stimuli coming from the viscera has little or no meaning, no reference beyond itself; if, as Professor Titchener says, 'we have our own bodies always with us; and the organic sensations will, consequently, be renewed or revived or reestablished when necessity arises,' then there is not only 'no biological sanction for the existence of images of these sensations,' as Titchener further holds, but no psychological sanction either. It seems to me one might logically follow this clue a little further. Most of us have our eyes and ears always with us. They are surely as much bodily organs as our viscera. Sensations arising from them will consequently be renewed or revived or reestablished when necessity arises; therefore there is no biological sanction for the existence of images of these sensations. Of course this inference runs counter to the implication in Professor Titchener's article to the effect that sensations arising from eyes and ears will not be renewed, revived or reestablished, when necessity arises. The stimuli 'act from a distance.' 'We must have images of sight and hearing,' to quote again, 'if conversation and various forms of intercourse are to go on.' Granted, but is this not also true to some extent, even if to a more limited extent, in the case of stimuli proceeding from bodily or organic disturbances?

In an emotional experience, consciousness of bodily disturbances figures conspicuously. But is it not clear that this consciousness of bodily disturbances refers *beyond* the bodily processes themselves, just as consciousness of retinal or aural or even of olfactory disturbances refers beyond the bodily processes themselves, and in that degree loses the sensational quality it may be conceived to have when no object is involved? '*Exarsere ignes animo*,' related Æneas, as he described how it was with him when he saw the form of Helen crouching in the temple of Vesta whilst Troy was in flames. If these symptoms of kindling vengeance were nothing more than organic sensations, merely informing him how his circulatory system was behaving itself, it is clear that Helen would have been in no particular danger, and that his *alma parens* would hardly have needed to appear on the scene.

Dr. Irons argues that the plausibility of the James theory of emotion vanishes 'when it is pointed out that, though consciousness of bodily disturbance almost always involves emotion, in and for itself this consciousness is not emotional at all.'² The force of the criticism is apparent; also, I think, its weakness. The critics have abstracted the consciousness of bodily disturbances to such a degree (making it consciousness 'in and for itself') that what they have on their hands is plainly sensational, not emotional. They have been

² *Mind*, N. S., Vol. 3, p. 78.

misled, I should infer, by the new emphasis which Professor James placed upon the function of the consciousness of bodily disturbances in emotion, and by the tendency to isolate this phase of consciousness somewhat for the sake of clearness and emphasis, into a failure to recognize what James himself does not always make perfectly evident, that the emotion depends quite as much upon the perceptual and ideational context of this consciousness of bodily disturbances, upon the reaction made by habits or disposition, upon the *whole* attitude taken, as upon the instinctive, organic, bodily processes themselves.

Consciousness of organic processes may become images in so far as these processes are abstracted as means from ends, and examined apart, for the sake of making out their qualities, without at the same time losing sight of their perceptual and ideational context. Professor James's usage of the terms *resident* and *remote images* is open, as I understand it, to such an interpretation, and can be applied in the case of organic images. They are *images* for two reasons. (1) Because, however kinesthetic and organic, they are means of acquiring and defining control over a volitional process. They have no *raison d'être* in and of themselves. They do not stand out as sensational. They are merged more or less in the larger experience they are helping to bring to pass. (2) Because the psychologist has called attention to them, exposed them, abstracted them, as the 'cues' of volition. They had else been nearer the 'fringe,' and their transition from 'resident' to 'remote' had escaped observation.

I find that in my own case I get the most unmistakable forms of organic imagery in the partial recall of certain emotional experiences. The attempt to get an organic image in a more isolated form is in most instances either flatly impossible, or else passes over into a distinctly sensational content. For example, the image of the cork-cutting feeling sometimes tends to lose itself in a definitely localized shiver.

My attention was called to the apparent difference between Professor Titchener and Doctor Lay in the matter of forming organic images. Professor Titchener himself raises the question as to the significance of individual differences and the effects of practice. Doctor Lay testifies to his ability to reinstate a fairly large variety of organic experiences in the form of images. With Professor Titchener, however, the tendency seems to be more marked in the direction of reinstating such experiences in a sensational form. Why is it that some persons can readily experience a varied assortment of feelings of organic processes in that reduced, indefinitely localized condition which causes them to be identified as

images? Why is it that others find such feelings so readily assimilating to the particular organs themselves, or so closely bound up with actual muscular contractions, as to cause them to be identified as sensations? To what extent may practice, training affect either capacity? For example, is it probable that facility in forming organic images is due to the gradual inhibition of the consciousness of the motor apparatus involved in producing the excitation; in other words, to the development of a technique for reinstating a portion of a previous experience which should finally depress its wires below the threshold of consciousness and thus produce the effect of spontaneity and indefinite localization? That is to say, is facility in forming organic images itself an instance of the process of developing control through passing from a 'resident' to a 'remote' image, the 'remote' image in this case being the organic image?

WILLARD C. GORE.

UNIVERSITY OF CHICAGO.

REVIEWS AND ABSTRACTS OF LITERATURE

System des religiösen Materialismus. I. *Wissenschaft der Seele.* DR. H. THODEN VAN VELZEN. Leipzig, in Kommission bei O. R. Reisland, 1903; pp. x. + 457.

This book is a new edition of the first volume of a system of philosophy, published in three volumes in Holland, nineteen years ago. Two editions of this volume appeared in that country. The revision of the other two volumes is promised.

The author lays down at the outset the definition of an entity as a spatial, material, movable thing. There is nothing immaterial except motion, which has no existence in itself. Beginning with sense images, they are felt to be spatial; and, moreover, being the result of movements in the nerve centers on the memory, and moving, in turn, the ego, they must be material, for only matter can have motion. Our concepts are shown to be so related to our sense images that they must also be spatial, material things. The concept of space itself is derived from the visual image of the vault of heaven, the hemisphere that comprehends all other visual images, supplemented by the images from the other senses, which together supply another hemisphere.

Since all our mental images are spatial, the form of space determines the fashion of our memory, which has accordingly a spherical form. The center of this sphere of memory is the ego, the feeling, thinking, willing spirit. This center is not a mathematical point but a space-occupying entity, its material character being proved by the fact that it can be moved by the memory and can react upon it. The soul is thus a material thing composed of two distinguishable entities, the ego endowed with freedom as the nucleus, and the surrounding memory with its microcosm of images and ideas. Beyond it is the macrocosm of other material things. Souls are also accorded to animals and plants.

The religious character of this materialism appears, so far as this volume is concerned, in the argument for immortality furnished at the end. While the ego is shown to be an atom, this is not the basis of the argument, for the survival of memory is also contended for. But death, psychologically considered, is merely a mental image capable of overshadowing and veiling other mental images, as the idea of sleep obscures the other images of the healthy man and of the hypnotic subject. These images, however, being entities, are not destroyed. The soul may even acquire again a body and continue its work on other heavenly bodies. This hypothesis is confirmed by spiritism.

Although the discussion of each topic is prefaced by a long review of teachings, ancient and modern, upon the subject, the work, nevertheless, gives but little evidence that the author has profited by the history of philosophy, and it has but slight contact with modern psychology.

EUGENE W. LYMAN.

CARLETON COLLEGE.

Gott: Religion: II. A. 2 in *Grundlegung einer wissenschaftlichen Philosophie*. DR. A. ELEUTHEROPOULOS, Privatdozent at the University of Zürich. Berlin, Ernst Hofmann & Co., 1903. 138 pp.

The author, a Greek by birth and educated for priesthood in the Greek church, holds religion to be a delusion, which 'iron strength of the cognizing understanding' should deliver us from; although he doubts the ability of mankind to attain to such self-discipline, and so expects that the delusion will be always with us.

On the side of religious metaphysics this treatise is a belated work. It rehearses the refutations of the three traditional proofs for the existence of God, and then assumes that there is and can be no God. For the ethical proofs it refers us to an earlier treatise on morality, in which the hypothesis of the existence of gods has been shown to be the source of the moral law, a relationship which it is fallacious to reverse. So far as the present work is concerned, it knows nothing of the value judgments by which the world ground is interpreted in terms of ethical personality; and it ignores all psychological experiences in which the workings of a transcendent moral person are known—experiences construed now monistically and now pluralistically.

In questions of the history of religions this book lacks the scientific character of which the system that it belongs to boasts. It designates as its task the determination of the conception of religion as a general phenomenon in the *natural* consciousness of man. By thus excluding all cooperation of reflection as empty speculation it really shuts out spiritual religion. One is no longer surprised that the author's arid review of the world's religions should issue in the statement: "In the conceptions of Myth, of Buddhism, of Mohammedanism, of Mosaism (with Prophetism) and of the belief in spirits there is nothing contained that is not to be found in Christianity; but also, conversely, nothing is present in the last that is not to be found in the former phenomena."

The careful student of Israelitish and Jewish religion would be amazed at the assertion that the development that takes place therein is essen-

tially 'the hierarchical ranking of spirits,' resulting in monotheism. So arbitrary and trivial a standpoint with reference to the origin of ethical monotheism among the Hebrews belies the author's scientific pretensions. Equally surprising is the statement that Jahveh and the Christian God are identical. Along with this, one notes the carelessness, or ignorance, which places the words of Jesus about John the Baptist—no reed shaken with the wind, but a prophet and much more than a prophet—in the mouth of John, as spoken of Jesus.

On the problem of the origin of religion the author rules out the mythological school without discussion, and in a few lines deals very cavalierly with the views of de la Saussaye, Reville and Tylor. His own conception, not so different from some of these, is that religion originates in reflection upon dreams, incited by the checks and failures that the primitive man experiences in his undertakings.

The treatment of the essence of religion has more to commend it. The method adopted, that of abstracting the common characteristics from different religions, is surreptitiously exchanged for the normative method in order to avoid landing in emptiness, the norm being found in religion as it occurs in the natural, popular consciousness. But the maintenance of the inseparability of morality and religion, even in primitive forms, and the emphasis upon a personal conception of God, or the gods, and upon the domination of worship by the consciousness of needing salvation, while they need much qualifying and limiting, show that the author's 'objective' point of view has not led him into a total misapprehension of his material.

EUGENE W. LYMAN.

CARLETON COLLEGE.

Morals: The Psycho-sociological Bases of Ethics. G. L. DUPRAT. Translated by W. J. GREENSTREET. The Contemporary Science Series. London, The Walter Scott Pub. Co.; New York, Charles Scribner's Sons, 1903. Pp. xv + 382.

We can safely say that the translation of Professor Duprat's book might have been much better, but it would be hard to believe that all the looseness and vagueness of the style can be solely the fault of the translator. However, this addition to our ethical literature is to be welcomed as giving to English readers a view of the more recent French and Italian treatment of ethics. It claims to be objective. 'In the near future . . . we shall be amazed at the subjectivity of moral conceptions . . . at assertions based on incomplete and even inaccurate notions of individual and social life; at precepts of value to the individual alone' (vi).

Perhaps the chief interest for us of this movement is in its attempt to furnish a practical application to present social conditions, of an ethical system, out of which responsibility and free-will have been eliminated. The title makes the claim for Professor Duprat's book that it is psychological and sociological.

After some general remarks making up Part I. under the title 'The

Method,' we come, in Part II., to the 'Psychological Ideal.' The psychology here is principally concerned with refuting the illusion of free-will, reaching the following exhortation: "Let us then be frank enough to say, to teach and to prove, that liberty, as it is too often conceived, is an illusion, due, as Spinoza foresaw, to ignorance of most of the determining causes of our decisions" (89). The application of this principle of determinism to criminology and to social relations in general always suggests interesting questions. The discussion of criminology, from this point of view, is given in the last chapter of Part II., and leads to Part III., 'The Social Ideal.' Two chapters give an historical review of the evolution of society. Chapter III. contrasts as extreme types the teachings of Nietzsche and of Tolstoi, and separate chapters treat of the family, the economic organization, the state and individual rights. The fourth and last part attempts: (1) To account for responsibility from this standpoint of determinism, and (2) to indicate a means for improving character, namely, not by punishment, but by 'suggestion.' In the ninety-one titles composing the bibliography at the end, Germany is represented by the following names alone, Zenker, Stirner, Nietzsche, Marx and Kant, and England and America by eight titles.

GEORGE R. MONTGOMERY.

YALE UNIVERSITY.

JOURNALS AND NEW BOOKS

THE JOURNAL OF COMPARATIVE NEUROLOGY AND PSYCHOLOGY. April, 1904, Vol. XIV., No. 2. *Physiological Evidence of the Fluidity of the Conducting Substance in the Pedal Nerves of the Slug—Ariolimax columbianus* (pp. 85-92): O. P. JENKINS and A. J. CARLSON. - Measurements of the rate of nervous impulse in different states of extension and contraction of the nerve. Stretching within physiological limits increases, while contraction diminishes, the transmission time for the whole nerve; but the rate, *i. e.*, velocity in a unit of length is the same in the two conditions. Stretching would seem to involve actual extension of the conducting substance, without change of rate of the conducting process or modification of the functional properties of the nerve. These facts are offered as evidence that the conducting substance is in a liquid or semi-liquid condition. (1 Fig.) *The Nervous Structures in the Palate of the Frog: The Peripheral Networks and the Nature of their Cells and Fibers* (pp. 93-117): C. W. PRENTISS. - Description of the peripheral network, based on methylene-blue preparations, with evidence that the fibers of the network are nervous structures and that neurofibrillæ pass through the cells. Also degeneration experiments, showing some of the cells to be true nerve cells which exert a trophic influence on the fibers connected with them. "The networks are comparable to the diffuse nervous system of certain invertebrates, and their existence is incompatible with the idea that the nervous system is composed of distinct cellular units." (12 Figs.) *The Beginnings of Social Reaction in Man and Lower Animals* (pp. 118-123):

C. L. HERRICK. — Ambiguity characterizes the current use of the word 'social' in psychology; 'socius consciousness' might serve to mean the social as reflected in the individual, 'society consciousness' to mean (an abstraction of) that which is common to the individuals composing society. The former is conditioned by habitual reaction to expected resistance, and arises when wonted resistances are removed or familiar responses fail and a 'feeling of hiatus' ensues. As the sphere of experience is enlarged the more easily is the equilibrium which depends upon the presence and due sequence of familiar elements disturbed. Feelings of mutuality, participation, dependence and obligation follow in due order. *Inhibition and Reinforcement of Reaction in the Frog, Rana clamitans* (pp. 124-137): ROBERT M. YERKES. — Chronoscopic measurements of the influence of complication of stimuli on electric reaction-time. Increase of light intensity from 1" to 2" before electric stimulation of the skin is inhibitory, inversely as the intensity of the electric stimulus; auditory stimuli appear sometimes to inhibit, sometimes to reinforce, the electric stimulus; visual stimuli, when given nearly simultaneously with the electric, reinforce (*i. e.*, the time is shortened); when they precede by an interval of 0.5" or 1.0," they inhibit (*i. e.*, the time is lengthened). The importance of considering the time relation of stimuli in any study of the relations of complexes of stimuli to sensory or motor processes is thus apparent. *On the Behavior and Reactions of Limulus in Early Stages of its Development* (pp. 138-164): RAYMOND PEARL. — A study of the ontogeny of reactions, primarily reflex, in the king-crab, both before and after hatching. Excepting only the swimming movement, the reactions of the adult are either identically similar to those in the free embryo or entirely absent, there being no evidence of progressive complexity in the development of behavior. A correlation appears to exist between type of behavior and type of body-form, independently of the stage development. Improvement with practice is evident in the case of the swimming, walking and 'righting' reactions. The machine 'works better' with use, but no 'psychical element' is required in explanation. (1 Fig.) *Editorial* (pp. 165-170). — Discussion of some neurological problems of contemporary interest. *Recent Studies on the Finer Structures of the Nerve Cell* (pp. 171-202): G. E. COGHILL. — A synthetic review of recent literature (thirty-eight titles). *Literary Notices*.

June, 1904, Vol. XIV., No. 3. *An Enumeration of the Medullated Nerve Fibers in the Ventral Roots of the Spinal Nerves of Man* (pp. 209-270): CHARLES E. INGBERT. — An histological determination of the areas of the cross-sections of the ventral roots, the number of nerve fibers in the ventral roots, the number of nerve fibers per square millimeter of the cross-section of the ventral roots, the relation between the ventral and dorsal roots in the respects above mentioned (with some comparative statistics), and the relative area of the cross-section of the roots forming the brachial and lumbo-sacral plexuses in the male and the female. (38 Figs.) *Editorial* (pp. 271-273). — Remarks on the 'comparative method' and on the Carnegie Station for Experimental Evolution. *Color Vision* (pp.

274-281): C. L. HERRICK. - A fragmentary critique of recent color theories, with special reference to M. W. Calkins' article in *Arch. f. Anat. u. Physiol., Physiol. Abt., Suppl.* 1902, and partly from the neurological standpoint. Anatomical considerations suggest that the retina is a coordination center of a high order, 'rather than the view that the sole function is to transmit the stimuli direct to the brain; and it is not improbable that the ganglia serve to impress upon stimuli their specifically *optic* character. The existence of centripetal fibers suggests accommodation processes in the retina itself.' *Literary Notices. Mark Anniversary Volume.*

THE BRITISH JOURNAL OF PSYCHOLOGY. June, 1904, Vol. I., Part 2. *The Taste Names of Primitive Peoples* (pp. 117-126): C. S. MYERS. - Cautions to be observed in such an inquiry. The intimate connections between sensations of taste, touch and emotional tone, of which many examples are here given, probably date back to a very early period of phylogenesis. *Immediate Memory in School-children* (pp. 127-134): W. H. WINCH. - Contrary to James's dictum, 'pure' memory is markedly improvable in practice; it improves with age; and there is generally a direct relation between good memory of this kind and intellectual sufficiency. Three tables of statistics. *Notes on a Case of Successful Operation for Congenital Cataract in an Adult* (pp. 135-150): R. LATTA. - Psychological observations made before and after the operation, showing the difference between the experiences of an intelligent adult and a child in the process of learning to see. *The Variation of the Intensity of Visual Sensation with the Duration of the Stimulus* (pp. 151-189): W. McDUGALL. - A new method described by which may be avoided the wide discrepancies hitherto found in treating this subject. The intensity is proportional to the duration when the duration of the action of light is less than its action-time. Red, green and blue lights have action-times of equal duration, nearly. Practical applications. Proceedings of the Psychological Society.

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NOTES AND NEWS

WE reprint the following letter which has appeared in several of the New York dailies:

At a meeting of the friends of the late Sir Leslie Stephen, recently held in London—the Right Hon. Sir Alfred Lyall, K. C. B., presiding—it was resolved that an offer should be made to the University of Cambridge to establish a Leslie Stephen University Lectureship in Literature (including criticism, history, biography, and ethics), on the model of the Rede Lectureship.

It was further agreed that it would be desirable that there should be some permanent connection between the lectureship and Trinity Hall, Sir Leslie Stephen's College.

We were nominated by the meeting to be members of a committee to carry its decision into effect.

A sum of £358 12s. has already been paid or promised. Of this amount £109 has been set apart, in accordance with the wishes of the subscribers, who

include some of Sir Leslie's American friends, for the expenses of reproducing in photogravure the portrait of Sir Leslie Stephen by G. F. Watts, R.A., and of presenting copies to institutions, including Harvard University, with which Sir Leslie Stephen was closely connected. The residue—about £250—is available for the endowment of the lectureship, but it is estimated that at least £600 will be required for that purpose.

Subscribers to the memorial of one guinea or upward will receive a copy of the photogravure of Watts's painting on giving notice of a wish to that effect before August 20.

It is requested that further subscriptions should be forwarded to Mr. Sidney Lee, 108 Lexham Gardens, Kensington, London, England. Checks should be crossed "London Joint Stock Bank, Limited, Pall Mall Branch."

A. C. LYALL,

JAMES BRYCE,

EDWARD A. BECK,

Master of Trinity Hall;

A. BIRRELL,

F. W. MAITLAND,

DOUGLAS W. FRESHFIELD.

SIDNEY LEE.

London, July 18, 1904.

At the recent jubilee celebration of the University of Wisconsin, President Van Hise conferred the degree of doctor of laws on Professor John Dewey of Columbia University and Professor E. B. Titchener of Cornell University with the following words:

John Dewey—Profound philosopher and psychologist, you have successfully applied your learning to the study of childhood and youth. You have been an inspiration and a guide to students of education in every progressive country. For distinguished service in the development of educational theory and practice this university confers upon you its degree of doctor of laws.

Edward Bradford Titchener—Through your skill in experimentation and your independence and sanity of judgment, you have become a leader in modern psychology. In many ways, and especially by your laboratory manual of experimental psychology, you have contributed to the creation of a new department of university study. For this work, the university confers upon you the degree of doctor of laws.

THE following appointments have been made in the department of philosophy of the University of Michigan: George Rebec, Ph.D., assistant professor of philosophy, to be junior professor of philosophy; Charles B. Vibbert, A.B., to be assistant in philosophy; John W. Shepard, A.B., to be assistant in psychology.

PROFESSOR A. C. BRADLEY has been appointed Gifford Lecturer on Natural Theology in the University of Glasgow for 1906-7 and 1907-8.

W. F. STORR, University College, Oxford, has been appointed University lecturer in the philosophy of religion at Cambridge.

DR. BURNETT of Cambridge, a graduate of Harvard and an instructor there the last year, has been elected to the chair of philosophy in Iowa College at Grinnell, Iowa.

THE JOURNAL OF PHILOSOPHY

PSYCHOLOGY AND SCIENTIFIC METHODS

IS THE ABSTRACT UNREAL?

WE frequently hear to-day statements like this: such and such a thing is an abstraction only, not a real thing. This has been said of scientific laws, of mathematical concepts, of such entities as force and matter, of thinking, feeling, acting, of anything objective or subjective, the external physical world or the psychical world. Indeed nothing is sure of escaping this metaphysical condemnation, except the great whole of the universe, which perhaps is too unwieldy for us to profit much by its reality.

Against an accusation like this one feels at first as helpless as the innocent victim accused of witchcraft in Salem. There seems to be no way of defending oneself, because, whatever one says, he is liable to be told that his very words are abstract and general and therefore do not represent the facts as they really are, the living concrete whole of experience. And this may apply to the last words as well as to anything else. *Life, whole, experience, concrete*, these must suffer the same fate as any other words. The doctrine that the abstract is unreal carries with it a belief in the inherent faultiness of the human mind. We congratulate ourselves to-day on having outlived the mediæval asceticism which taught that the body vilified all spiritual impulses; but is it not as bad or worse to teach that the mind, with a taint of original sin, perverts and falsifies the real by thinking about it? Surely the modern philosopher, however committed by his words to this view, would be secretly pleased to regard every correctly formed description of what we observe in the external world as finally true so far as it goes. Incomplete it may be, but must we add to this the vice of misrepresentation?

Moreover, it is a curious fact, which tends to arouse a little suspicion, that the most ardent defenders of this view, those 'scientific' philosophers of whom Professor Pearson seems to be the type, who profess at every turn their scorn of metaphysics and metaphysical abstractions, grasp eagerly at the support given them by this most Hegelian of Hegel's doctrines. If the enemies of metaphysics welcome such a view, is it not time for the metaphysician to examine its nature?

Such are the motives which lead me to undertake an examination of the doctrine that the abstraction is, as such, unreal. I shall try to show that the doctrine is based on a very elementary mistake in reasoning; that there is no logical basis for asserting that an isolated thing once given to us as part of a whole, can not exist *unchanged* in complete independence of that whole; and that, on the other hand, there is strong evidence that such a thing *can* so exist. The argument will have two parts: the first part will try to show that our more or less abstract description of particular sense-facts does not disagree with these facts, has no misrepresentation or contraction in it, though it is often only partial;¹ and the second, that the parts abstracted may and probably do exist sometimes in isolation, and that therefore in such cases the abstraction by itself is just as real as the whole from which it is abstracted.

In the first part I shall criticize Mr. Bradley's argument² that abstract description falsifies the particulars of sense, as his seems to me the most straightforward defense of this view in English. Mr. Bradley brings up the issue in discussing analytic judgments of sense (*e. g.*, 'this apple is red'). He accuses them of falsity because they are partial and abstract. He says:³ 'It is never more than an arbitrary selection which goes into the judgment.' 'We sunder and divide what appears to us as a sensible whole.' 'It is precisely this coming short of fact and stating a part as if it were the whole which makes the falseness of the analytic judgment.' What appears is $X = abcdefgh$; our judgment is only $X = a$ or b . 'But ab by itself has never been given and is not what appears.' 'It was *in* the fact and we have taken it out. It was *of* the fact and we have given it independence. We have separated . . . mutilated the given.' And again,⁴ 'It is an immense assumption to conclude when a fact comes to us as a whole that some parts of it may exist without any sort of regard for the rest.' Now of course it is false to say that a part *is* identically the same as the whole. But does a simple judgment like the above, which predicates the abstract part *red* of the whole thing *rose*, do this? If we stick to the actual words used, the judgment does no such thing. Does 'the apple is red' say explicitly, 'red is the whole of the apple, all there is about it'? If the original judgment had been, 'the apple is red and nothing more,' it would be quite different. If *red* is the same as *red only*, why keep this word *only* in our language? Or if you urge that the judgment does not indeed *say* 'only,' but implies it, the answer is a denial. If you

¹ Cf. Hobhouse, 'Theory of Knowledge,' Ch. on Imagination, *passim*.

² 'Principles of Logic,' Ch. II.

³ *Op. cit.*, p. 94.

⁴ *Op. cit.*, p. 95.

insist on bringing in meaning, we should all certainly say the judgment means, 'the apple is red and something else besides.' What we need here is a study of the meaning of *is*, and that study must be based on the way *is* is actually used, not on a preconceived theory that it means perfect identity. And who thinks, when judging, of making the 'immense assumption' that the red of the apple 'exists without any sort of regard for the rest'? Because we do not say it exists with the other qualities, are we to be understood to say it does exist without them? Because I did not just now say, 'there is a place called England,' do you infer that I denied England's existence? This kind of reasoning is bad logic. But formally it says, because *A* is in relation *R* with *B* it is not in relation *R* with *C*. We do not allow mathematicians, scientists and 'plain men' to reason thus—why should we allow logicians and metaphysicians? As for the 'mutilation,' you might as well say you mutilate a man when you take hold of his arm, because you do not at the same time take hold of his whole body.

The more or less abstract description of the judgment does not, then, seem to falsify or contradict what it describes. We come now to the second half of our task. Is the isolated part, aspect, or element necessarily unreal, unable to exist by itself? Here even Mr. Hobhouse, we must think, errs and falls under the sway of the traditional view. For there is the same bad logic here as in the argument of Mr. Bradley. If it is an unprovable assumption that the abstract is the whole truth, it is an equally unjustifiable assumption that the thing abstracted could not exist by itself, apart from the context which it now has. Mr. Hobhouse says,⁵ 'the abstraction . . . can be realized only as a feature of a concrete whole;' and again,⁶ 'what is normal and necessary is the formation of abstractions along with the knowledge that only the whole can be the reality.' And Mr. Ward also, if I understand him correctly, argues that because the external world and the scientific description are abstract aspects of experience they can have no reality apart from and independent of our experience. Let us state this reasoning formally in order to see its logical character. Call the abstracted part or aspect *A*, the rest of experience *B*, and the real *C*. Then the argument runs thus: *A* with *B* is *C*, or, if *A* is with *B* it is *C*. This we all admit, of course. Nobody denies that the whole is real; the only question is, are the parts by themselves also real? Now from the above the conclusion is drawn: if *A* is not with *B*, it is not *C*; the part *A* abstracted from its context *B* is not real. Any student of elementary logic knows better than to reason thus. What possible ground appears

⁵ 'Theory of Knowledge,' p. 202.

⁶ *Op. cit.*, p. 193.

for concluding that the part abstracted may not exist all alone by itself? If the context *B* were essential to the meaning of the part *A*, the case might be different, but that is a quite unjustifiable assumption. It is a curious fact that, while those who condemn the abstraction often do so on the general ground that the meaning of every fact depends on the presence and meaning of every other in the universe, they do not usually undertake to show this for particular cases. It is just when you come to particular cases that this general rule itself, again and again, is seen to be so very abstract that it cannot be made to work. In particular cases, a given part *A* often shows its character to be quite independent of its context *B*. A given physical object remains, as far as we can possibly observe, constant through many different perceptions of it. My thought of a triangle remains in many details exactly the same, as far as all empirical evidence goes, whether I am in the city, in the woods or on the sea, or in a state of abstract attention where I perceive no outer world at all. So far as we can see, a certain visual image often remains before the mind practically constant in nature throughout ever so different external surroundings. Must we not, then, say that the very meaning of that image is independent of the physical surroundings? The doctrine that the meaning of everything depends on that of everything else is, I venture to think, utterly vague speculation, incapable of proof. It is just an *a priori* assumption, whose greatest attraction is its generality. And experience shows us case after case where there is no proof of its applying, where there is revealed to observation perfect constancy in the midst of change.

We have objected so far to the logical soundness of the position that the isolated part is necessarily unreal. We have seen no *a priori* ground for such decision, and the empirical grounds urge rather the opposite conclusion. Many presentations are given to us independent of each other, each remaining constant while the rest vary; and this *suggests*—I do not say *proves*—that their mutual independence may be so thorough that each could exist alone. But even if sufficient reason has not yet been advanced to demonstrate this, we are at least warranted in saying that, on *a priori* logical grounds, the impossibility of isolated real things cannot be demonstrated. Mr. Hobhouse's 'knowledge that only the whole can be the reality,' is just the expression of a very widespread assumption. The part is of course often in some measure affected by the whole which surrounds it, but much that is in that part remains unaltered, so far as we can see. And if it remains unaltered in different surroundings, then it *might* remain the same if all its surroundings were obliterated. To apply this to the idealistic problem: the psychical world might consistently enough be nearly what it is without any external

world, and conversely the external world might to a large extent remain unaltered by the entire disappearance of consciousness.

But there is, one must believe, another basis for the wholesale condemnation of isolated parts. We feel that the real is what is given in experience; and since external and internal, part and whole, thinking and doing, are given to us together, we feel that it would be false to say that any one of these existed apart from the rest. Matter and force are given to us bound up with motion, heat, resistance, and so we say that the former are not real things by themselves. And no doubt one must gladly welcome this tendency of modern thought to insist on completeness of view, and to search for a possible underlying unity. I am not arguing against the belief that much in nature actually presents a big general unity. I simply wish to guard against the narrowness which says that this *must* be a complete account of the matter. We have no right to conclude, because things come to us bunched together, that they have not still enough individual freedom to dissolve that union. The real is just a little larger than the present given; it includes also potencies which underlie the immediately experienced. What these potencies are, whether they display independent activities on the part of the details of the given, observation and analysis of that given alone can decide. It is simply bad logic to assume at present such a monistic view as would deny the *possibility* of many parts existing, with unchanged characters, in isolation from the wholes in which they first appeared to us. And on the other hand, there is found by observation and analysis strong evidence of the ability of many things to exist without the support of all of their environment. And even further, abstraction itself is a part of our experience. We can entertain only a limited subject-matter in our mind; the given is itself isolated, for I see but a small portion of the world with my imperfect eyesight. Yet I do not for that reason deny reality to what I see, nor should I do so if on journeying to the limits of my field of vision I found that sight failed beyond a certain circumference, where it had continued in my previous journeys over the same ground. There is, therefore, far from being in the nature of given experience any reason against the possibility of the isolated part being real; there is, perhaps, evidence in favor of that possibility. Let us, then, be more modest in our scorn of the abstraction; let us admit that the small things, the finite parts, may possibly be, in and of themselves, just as real as, besides being somewhat more useful to us than, the great whole of which they first appear to us as parts.

W. H. SHIELDON.

OF CONSCIOUS EFFICIENCY

Sec. 1.—It is generally agreed that what we call interaction takes place between some parts of the nervous system and others: the capacity of a nervous part to act thus, constitutes what we call its efficiency.

In previous articles of this series, we have seen reason to believe that all parts of the nervous system are at all times active so long as they are alive, and that they are fundamentally of the same nature; and, if this is true, then it would appear that all parts of the nervous system must be reciprocally efficient; the activity in any one special part would not be what it is but for the influence of the activities in all other parts of the system; nor can the activities in these other parts of the system remain unaffected by the activity of this special part. This carries with it the conclusion that in any given neururgic pattern, the neururgic emphases and the undifferentiable neururgic mass against which these emphases are contrasted, display a reciprocal efficiency.

But if the theory of a thoroughgoing neururgic and noetic correspondence which we are considering in these articles is valid, then we should be able also to say that in any given noetic pattern, the noetic emphases and the undifferentiable noetic mass against which these emphases are contrasted must also display a reciprocal efficiency; provided it is agreed that anything like efficiency appears within consciousness, a point to which we refer later. That is, the field of attention and the field of inattention must be reciprocally efficient. But the field of attention in any moment is what we usually speak of as the presentation of that moment; and if it is true, as we have argued in the preceding article, that the field of inattention is what we call the Self, we may then say that the Self and the presentations to the Self are always reciprocally efficient.

Sec. 2.—But it may be questioned whether we are justified in speaking thus of an efficiency within consciousness, and to this question we may well turn before going farther. When we do so we at once perceive that in fact the notion of efficiency is gained only as the result of our introspective experience; it is a datum of what we call subjective observation, and so far as we apply it to objects in the outer world, we do so by a process of interpretation. We attribute it to objects in the outer world because we note a close analogy between events in the outer world series as given within consciousness, and events in the purely subjective, or what we may call the not-in-the-outer-world, series. As Dr. Geo. W. Knox well puts it,—if we awakened to full consciousness in an hermetically sealed glass receptacle, in the midst of a forest in a wind storm,

and were without any tendency to move our eyes, or to accommodate them to moving objects, then the falling leaves about us would appear as a mere succession of phenomena within consciousness. But were we suddenly removed from our glass receptacle, at once, in connection with our reaction to the wind-blown leaves, we would gain the experience of efficiency. This experience it is which gives us the basis for the attribution of a like characteristic to objects in the outer world with which we find ourselves confronted. We ascribe efficiency to these objects in the outer world as a counterpart of the efficiency which we experience subjectively; and we then extend this attribution to particular objects in the outer world as they relate to others.¹

Sec. 3.—The question, then, is not whether we are justified in attributing efficiency to consciousness, but rather whether we are justified in attributing to objects in nature this efficiency which we discover in our conscious experience. I shall not take space here, however, to consider this point, inasmuch as this question is answered affirmatively by practically all men, learned and unlearned. This attribution is indeed fundamental to our conception of the existence in the physical world of systems of interactive parts, of which systems the nervous system with which we are here concerned is one type.

I think, then, that we may assume that in any given neururgic pattern, the neururgic emphases and the undifferentiable neururgic mass are always reciprocally efficient; and, assuming the validity of the theory of a thoroughgoing neururgic and noetic correspondence, that the field of attention (the noetic emphases) and the Self, *i. e.*, the field of inattention (the undifferentiable noetic mass), are always reciprocally efficient.

This thesis carries with it certain results of great interest, some of which we shall discuss later in this and in the next article of this series; but before considering these, I shall ask the reader to turn with me to another closely related problem.

Sec. 4.—In the light of this conception of a thoroughgoing reciprocity of neururgic efficiency, and of a corresponding thoroughgoing reciprocity of noetic efficiency, let us attempt to state what we mean

¹ It is interesting to note in this connection that Professor B. L. Gildersleeve tells us that his study of the Greek language, which was so clear an expression of the innermost of psychic experiences, convinces him that 'effect to the natural man means will. The neuter has no nominative because it has no personality,—no will.' I quote here, and later on, from personal letters which Professor Gildersleeve has kindly allowed me to make use of. How the object affected may be subsumed under the object effected, he has indicated in his 'Later Grammar,' § 329 note. *Confer* also the *American Journal of Philology*, II., 89.

by the common observations, that under certain conditions the 'body acts upon the mind,' and that under certain conditions the 'mind acts upon the body.'

In order to simplify our discussion we must first note that all action of a man's body, as the result of its contact with the physical world, is traceable back to activities within his bodily system, of which activities those within his nervous system are of preeminent importance. Taking this for granted, we may restate the every-day observations above mentioned in the following terms:

1. Some activities in the nervous system, due to the reception of energy from the physical environment of the system, affect the nature of consciousness.

2. Some states of consciousness affect the activities of the nervous system in a manner which brings about adjustments of our bodily organs which indirectly affect objects in the physical world.

But these facts may be still differently stated in terms of our theory of a thoroughgoing neururgic and noetic correspondence, as follows:

1. The first case may be stated thus:

A given noetic pattern β now existing would not be what it is but for the previous existence of a neururgic pattern A .

But this previously existing neururgic pattern A had corresponding with it a noetic pattern α ; although in retrospect α is not prominent, while A is. And this now existing noetic pattern β has corresponding with it a neururgic pattern B , which, however, is not prominent in retrospect, although β is.

Hence what we are really saying is that a given noetic pattern β now existing (and its corresponding neururgic pattern B) would not be what it is but for the previous existence of a noetic pattern α (and its corresponding neururgic pattern A). This surely is not difficult to believe.

In the case here considered, in retrospect, the series A -and- β is in the field of attention, while the series α -and- B is not. Consequently, we have before us in the attention the neururgic pattern A followed by the noetic pattern β , with a sense that A was efficient in relation to β .

2. The second case may be stated thus:

A given neururgic pattern B now existing would not be what it is but for the previous existence of a noetic pattern α .

But this previously existing noetic pattern α had corresponding with it a neururgic pattern A , although in retrospect A is not prominent, while α is.

And this now existing neururgic pattern B has corresponding with it a noetic pattern β , which, however, is not prominent in retrospect, although B is.

Hence what we are really saying is that a given neururgic pattern *B* now existing (and its corresponding noetic pattern β) would not be what it is but for the previous existence of a neururgic pattern *A* (and its corresponding noetic pattern α). This surely is not difficult to believe.

In this case, in retrospect, the series α -and-*B* is in the field of attention, while the series *A*-and- β is not. Consequently we have before us in attention the noetic pattern α followed by the neururgic pattern *B*, with a sense that α was efficient in relation to *B*.

Sec. 5.—But some one may feel that what we have just said does not touch the main point that appears to the average man to involve difficulty. We are not so much interested in case 1, where the 'body appears to act upon the mind,' as in case 2 where the 'mind appears to act upon the body.' And in relation to this case 2, we find our difficulty only in certain of our experiences. We do not find a problem where a noetic emphasis α , as in sensation-perception, affects a following neururgic pattern *B*, as in the resulting activity of the reactive organs; for we are ready to assume the existence of a neururgic emphasis *A* corresponding with the first occurring noetic emphasis α , and are equally ready to agree that *B* is what it is because of the efficiency of the previously existing *A*. What we ask for is an explanation of the action, upon the following neururgic pattern, of the Self which is not a noetic emphasis. Let us then consider the case where the Self seems to be efficient in determining the form of a certain neururgic pattern.

Under the view maintained in the last article, the Self, as the field of inattention, is part of the first-mentioned noetic pattern α , and had corresponding with it an undifferentiable neururgic mass within the corresponding neururgic pattern. What we really say in such a case, then, is this: a given neururgic pattern *B* now existing (and its corresponding noetic pattern β) would not be what it is but for the existence of the neururgic mass in a previously existing neururgic pattern *A* (and the field of inattention, or Self, in its corresponding noetic pattern α).

This surely is not difficult to comprehend if our theory of a thoroughgoing neururgic and noetic correspondence is valid, and if there is, as we hold, at all times a thoroughgoing reciprocity of efficiency between all parts of the neururgic and noetic systems.

Sec. 6.—Now let us turn again to the consideration of the corollary of the theory of a thoroughgoing neururgic and noetic correspondence above referred to, *viz.*, that the field of inattention and the field of attention,—the Self and the presentations to the Self,—are fundamentally of the same nature, and being systemically related, are always reciprocally efficient. This means (1st) that

in every moment of consciousness the form of noetic emphasis determines some measure of alteration in the nature of the undifferentiable noetic mass, *i. e.*, the field of inattention, or in other words, the Self; and (2d) that in every moment of consciousness the form of the noetic emphasis is more or less determined by the efficiency of this field of inattention,—of the Self. Let us consider each of these points briefly.

Sec. 7.—Evidences of changes in the nature of the Self, due to the influence of noetic emphases, or presentations, can of course not be gained by reference to introspection, for the realm of introspection is within the field of attention, and the Self, under our hypothesis, is not presentable in attention.

But we may hope to gain indirect, objective, evidence of this action of the presentation upon the Self by noting cases in which it is clear that presentations are given to the Self of a man under observation, and considering the nature of his Self as indicated by his mode of action. We may observe, in other words, the evidence of a change in what we call the man's character, as the result of emphases which we have reason to believe are given in his consciousness.

Such evidence is before us at all times in the actions of men who are utterly lacking in self-consciousness,—whose fields of attention contain no empirical egos, but merely the presentations to the unrepresentable Selves. For example, observing a man writing steadily and quietly at his table, all intent upon the visual elements before him, unmindful of the striking clock, or of the rumble of loaded wagons on the street, we suddenly see him stop writing, rise from his chair, and go to the window with the remark, 'Did you hear that clap of thunder?' Here the Self of one form which was occupied with visual impressions and the thoughts connected with them, suddenly becomes a Self of another form reacting to aural stimuli. If we judge by their reactions, as we always must judge, the two Selves at the two moments are manifestly diverse, and this diversity is clearly due in large part to the diversity of the emphases within the whole of consciousness of the two moments.

Some reader at this point may feel inclined to question our right to speak thus of the man's diverse Selves, but I shall ask him to waive his objection at present, awaiting the study of this point in a later article in which I shall consider the mutability of the Self.

Sec. 8.—We may turn, then, to our second point made above, to which I shall devote the remainder of this article, and which will appear of importance in an article to follow.

Under the theory here examined, in *every* moment of consciousness, the form of the noetic emphasis is more or less determined by

the efficiency of the Self. To take the simplest kind of an example: A complex noise reaches me from the street as I write, and I find certain of the sounds so emphasized as to suggest the rhythmical beating of drums. When I study the noise, however, I find no one set of sounds predominant, nor do I discover any noticeable rhythm in their occurrence. Something from without the given presentation must have served to emphasize certain tones, and must have given the rhythm to the succession of sounds. And clearly this influence must have been within consciousness; and having been within consciousness and yet not in the field of attention, it must have been within the field of inattention, *i. e.*, within the Self.

I do not need to point out to the readers of this JOURNAL that we are here considering the great fact of mental assimilation, nor that this assimilation is always discriminative in character; but I wish to lay stress upon the point that this discriminative characteristic of assimilation is due to the nature of the conscious system as apart from the noetic emphasis, and existing at the time the noetic emphasis occurs; and that this discriminative characteristic is not determined by the nature of the emphasis in the field of attention, but rather by the nature of that part of consciousness which is apart from the field of attention, namely, the Self.

This may seem to the reader altogether too commonplace to refer to in the pages of a JOURNAL devoted to expert work, but I shall ask him to note that once having acknowledged that the Self is, at any time, efficient to modify the form of the noetic emphasis within the field of attention, then, if the thesis here presented is valid, it must do so in some measure at all times. That is, the Self always, and without exception, has its part in the determination of the form of the noetic emphasis in the field of attention.

But, if this is true, it certainly shows us that the distinction between active and passive,—voluntary and involuntary,—voluntary and spontaneous,—attention, which is made much of in these days by many psychologists of high standing,² is a misleading one. It may be a distinction of some small value in descriptive work, but it can not be of any fundamental importance.

The Self must *always* have its part in the determination of the nature of the noetic emphasis. At certain times, this part played by the Self is perfectly clear, when, for instance, two opposed and incompatible emphases appear in attention, and when the Self acts to emphasize the one and to minimize the other. Then we have what we call clear voluntary attention.

At other times, the part played by the Self may be so unemphatic

² Cf. James, 'Psychology,' I, p. 416 ff.; 'Briefer Course,' p. 221. Sully, 'Outlines,' p. 80. Ribot, 'Psychologie de l'Attention.' Stout, 'Groundwork,' p. 50; 'Analytical Psychology,' I, p. 240 ff.

that it altogether escapes our notice. Then we are likely to say that the stimuli from the environment, or their resultants, force our attention without any self-activity, and then the careless thinker speaks of the state as one of involuntary attention.

But it is clear, if our contention is justified, that, even where the forcefulness of the stimuli determining the emphasis is most extreme, there must be some element of efficiency arising out of the Self, which in some measure determines the special form in which the emphasis appears. This point will appear of importance in the next article of this series.

HENRY RUTGERS MARSHALL.

NEW YORK CITY.

DISCUSSION

ANSWER TO PROFESSOR PIERCE

THE experience described by Professor Pierce in the JOURNAL of July 21 is, I think, a common one, certainly with myself, and at least not unknown to several others, as it has been put on record by Professor Stout, in his 'Analytical Psychology, Vol. I., p. 247: "In some instances the sensation itself never enters into attentive consciousness at all. Thus, in walking along a street, a name may suddenly come into my mind, and I may at first be totally unable to account for its intrusion; but on looking around I find the name printed in large letters above a shop window or on an advertisement board. Now the name as it first occurred to me was not visualized, but internally heard and articulated. It follows that the visual experience must have influenced the flow of mental images, while itself remaining in the field of inattention." In a footnote on p. 248 he adds: "The following additional example was communicated to me by Professor MacKenzie as this work was going through the press: "An even more striking experience (which very often happens to me) occurs in glancing over a large page (especially the page of a newspaper). One often becomes aware of some word in such a case which one finds oneself repeating internally. On investigation it sometimes appears that there is no such word on the page, but that one part of it occurs at one part of the page and another part at another. Here one has not only received an impression, but made a combination without having attended to it."

I have a number of such combinations recorded, one of which is unique, as the letters are in reverse order. On July 7, 1904, I was reading 'The Story of the Plants,' by Grant Allen. Glancing over

page 115, I got an auditory image of the word 'tipsy' in the quality of my own voice, as I always do when I read or write. As the word was foreign to the matter, I was curious to see where it came from. I found the letters in reverse order, or rather in a somewhat circular form, near the margin at about the middle of the page, in these words:

.....in the
.....early spring

An example from my own introspection, showing translation from sight to smell, is as follows: On July 31, 1903, as I was reading a book, I was conscious of a strong odor of ink. I remembered two minutes later thinking to myself, but not in words, "It must be some 'old-house' smell which is like ink." (I have frequently been able to analyze smells into their constituents, *e. g.*, a pleasant odor into two very unlovely ones). I had this thought, and went on reading when suddenly I looked at the white table-cloth upon which I had laid my fountain pen. It had become rumpled so that the muslin touched the point of the pen. Ink had soaked out, so that a spot was made about the size of a twenty-five cent piece. I said above that I had become conscious of a smell of ink. This is not saying that I had a sensation of smell. I believe, indeed, that the information was given me through the eye. The ink spot was visible out of the corner of the right eye, and I believe, so to speak, that my eye told my nose and my nose told me! When I saw the spot consciously, I could not smell it until I put my nose to within three inches of it. The olfactory quality vanished immediately when the spot was regarded visually.

I could give many examples of translation from visual impression to auditory image. Indeed, it is my usual process in reading to myself, and differs from the striking cases mentioned by Professors Pierce and Stout only in the fact that the impression remained in their cases below the threshold of attentive consciousness until after the image was attended to. In my silent reading I have observed that the attention vacillates between the visual impression, the regular auditory word images and the visual images aroused by them, in such a way that it can frequently be said that the visual impression is below the threshold of consciousness. Viewed in this way, there seems to be no difference in kind, only one of degree, between the translations noted by myself and others, and the normal process of silent reading in my own case. In reading silently I am, and I feel sure that others also must be, conscious now of one and now of another impression or image, visual, auditory or what not, and that

when I am conscious of one image I am totally unconscious, for a very brief time, of course, of anything else, impression or image.

WILFRID LAY.

AMAGANSETT, N. Y.

REVIEWS AND ABSTRACTS OF LITERATURE

An Introductory Study of Ethics. WARNER FITE. Longmans, Green and Co., 1903. Pp. xi + 383.

Professor Fite's work is apparently the outgrowth of a clear appreciation of the antinomy in ethics between idealism and hedonism: 'There seems to be a contradiction between moral ideals and the condition of practical attainment' (p. 277); between 'progress and happiness' (p. 327); between 'a constant strain toward the future' and a basing of efforts upon the 'immediate and actual state of things'; between 'a constant contempt for the present' and an 'actual enjoyment.' 'We must not only live in the expectation of a future good, but we 'must enjoy each period of life while it is here' (p. 327). "Progress considered alone commands us to aim directly at perfection without regard to the pain and struggle involved in the effort or to the possibilities of more immediate good which may be thereby sacrificed. . . . Do not stop to realize and enjoy, but press constantly on" (p. 328). "We find in ourselves two opposing tendencies, the one urging us to the practice of a higher and more perfect type of humanity, the other calling upon us to make ourselves happy and comfortable in the conditions of life as we find them" (p. 29).

The making of the fact of this moral problem clear is one of the chief endeavors and also one of the chief merits of the book. In regard to the solution Professor Fite is not so confident. "Now a complete solution of the moral problem is, according to my view, quite out of the question. . . . It is a mere empty statement to say, with popular philosophy, that the two sides of the problem are but 'the two sides of a shield,' or with Fechner, that they are related as convex to concave and are hence necessarily harmonious. . . . The assertion of harmony conveys no information. . . . But in the absence of a completely consistent system, and of a completely satisfactory solution of the moral problem, we may still, I believe, through a critical adjustment of the claims of the alternative theories, construct a reasonably satisfactory working hypothesis, such as will enable us to define our general attitude toward the different elements in the moral situation. It is such an adjustment that I have in mind in the remaining four chapters—a working hypothesis rather than a final solution" (p. 288). Professor Fite, therefore, is looking for a compromise. "We have to admit that there is a difference between the degree of attainment required for the greatest progress and that required for the greatest enjoyment of happiness. And since the requirements of a moral life include both progress and happiness" (a point which, as we shall see,

Professor Fite 'assumes') "any course that we may take will be of necessity a compromise. We have then to determine what sort of a compromise best meets the demands of both" (p. 331).

"The difficulty with the hedonistic calculation may be expressed by saying that the result does not fully cover what common sense understands by duty" (p. 154). "The hedonistic definition of the individual and his interests is obviously imperfect, and for this reason it can not serve all the purposes of a calculation of social relations. But, while imperfect, it furnishes, nevertheless, a useful method for the settlement of important practical problems" (p. 155). "It must be remembered that to a large extent hedonism furnishes the theoretical basis upon which commerce is carried on, laws made, government administered, and claims settled in courts of equity" (p. 156). "The hedonistic theory of social duties is approximately valid . . . for the region extending from the lower to the middle ranges of the moral scale" (p. 140). "The idealist offers certainly a more satisfactory account of the higher morality and of the point of view of more cultivated and conscientious men" (p. 261).

In a compromise there is a call for common sense rather than for a rigorous establishment and application of principles. The application of common sense in ethics is well carried out in the last chapter, which treats of the problems of government, of property, of honesty, etc.

There are, however, pages in which Professor Fite endeavors to give more than a compromise between accepting one's life as a means and accepting it as an end. "From the theoretical standpoint we are compelled by a necessity of our thought to assume that our world is ultimately a unity" (p. 287). "This *a priori* possibility of reconciliation is confirmed, as I shall endeavor to show, by an analysis of the opposing conceptions" (p. 290). "It will be remembered that hedonism was described as a clear but incomplete view, idealism as a more comprehensive but relatively obscure view" (p. 289). "When we attempt to make hedonistic conceptions comprehensive, we find that they acquire an idealistic meaning or at any rate if not a perfectly clear meaning, an idealistic flavor; and when we attempt to make idealistic conceptions clear, they acquire in a similar manner a hedonistic meaning" (p. 290). This seeking for a harmony takes him into what he terms the field of metaphysics and of evolution. One of the considerations which leads him to believe in a reconciliation without being satisfied with a mere compromise is that mechanism when elaborated approaches consciousness (purposiveness), and consciousness when analyzed becomes mechanical 'so that the conceptions of a world determined by mechanical forces and of a world determined by reason or consciousness are not logically contradictory but only empirically irreconcilable' (p. 325). "If we conceive the range of activity of any machine to be sufficiently extended to equal that of a human being we shall necessarily think of that machine as conscious" (p. 291). "And when we have to do with an activity so vastly complex and adaptable as that of a higher animal or human being the association of consciousness with the activity is no longer merely involuntary but inevitable and necessary. In a word, an activity thus adaptable becomes

ipso facto a conscious activity" (p. 294). "It appears, then, that there is no ultimate contradiction between the mechanical and teleological views of human life. A mechanism with the high degree of organization shown in human life must necessarily be conceived as conscious" (p. 295).

Professor Fite himself states the natural objection to this view: "Let your machine be never so complex, it is still nothing but a machine, and consciousness never so simple is still consciousness"; and he meets it merely by a reaffirmation of his belief. "This it seems to me is the crucial point of the argument. . . . When we take these structural modifications into account we find, as it seems to me, not only that we can conceive a mechanical object to think, but that it becomes inconceivable that a mechanical object of so high a degree of complexity should not think" (p. 292). "As a machine becomes more complex as a whole and more adaptable to varying conditions, it becomes also more complex and adaptable—in other words more *sensitive*—in its individual parts" (p. 293).

Passing from the mutual approach of mechanicalism and consciousness as an indication that we can expect between hedonism and idealism not only a compromise but also a harmony, Professor Fite finds as a second indication, the fact that happiness and self-realization mutually approach; as a third, that the egoism of the older political economy when developed approaches the altruism of the humanitarian, so that 'both alternatives' (of hedonism and idealism) 'must be used as regulative hypotheses.'

In Chapter XVII. evolution, defined as 'a constant process of reorganization, looking to a wider range of activity' (p. 308) is also brought forward to point to a real reconciliation between idealism and hedonism. Evolution, however, merely points to the reconciliation, and does not bring it about for the ideal changes as fast as realization is achieved. The conflict is indeed a necessary factor in life (p. 318). "In thus insisting on the positive character of the moral conflict the view presented here differs both from the optimistic view (Professor Dewey's for instance) which regards the moral conflict as a mere appearance, and from the pessimistic, which regards it as a hopeless contradiction" (p. 319). The question marks which come up in reading these quotations are evidences of Professor Fite's candor and of the suggestiveness of the book. We might indeed ask whether with *nirvana* for an ideal, or the *Verneinung des Willens*, we could believe in a reconciliation with hedonism. When we find him 'assuming that the world progresses' (p. 326), we might ask whether a psychological definition of the good might not be of help in his discussion. Another question might arise regarding his position on determinism when in this part of the discussion we find him identifying mechanicalism and determinism with hedonism, while earlier in the book (p. 104) hedonism stands for contingency as expressed in the Lamarckian theory of evolution.

Perhaps, however, we have already given a wrong idea of the book by bringing into undue prominence those points which, for one to whom the book is not an introduction to ethics, are the more interesting. An

important feature of the book is the exposition of the hedonistic and idealistic systems in ethics from the standpoint (1) of their principles, (2) of their goal or purpose, (3) of social theory and (4) of philosophy. In this connection special mention should be made of the clearness of style and of the unusual excellence of the paraphrasing. A few quotations may indicate some of the points brought out.

1. As to principles: "The Hedonismist's theory of conduct is based upon the fact that happiness and freedom from pain constitute ultimately our sole object of desire" (p. 38). His method 'is that of quantitative comparison or calculation' where there is a 'fixed' 'objective standard' which may be 'expressed in terms of simple units' (p. 40 ff.). Stuart Mill's contention that the measurement is not 'by quantity alone but also by quality' is not valid (p. 52 ff.). Idealism, on the other hand, is based either upon 'perceptual,' 'esthetic' or 'dogmatic intuitionism,' or upon 'rationalism' (Kantian practical philosophy), or else upon 'self-realization.'

2. As to goal or purpose: To the evolutionary hedonist 'pleasures are the requisites for survival'; hence the preservation of life is the purpose; and although Spencer argues for measurement of life in terms of breadth, 'we must conclude that the only criterion which a hedonist may consistently adopt for the measurement of the quantity of life is that of length' (p. 68). On the other hand, the rationalistic idealist is indifferent to the ends attained by his conduct, provided only that his conduct be self-consistent. But 'the introduction of the conception of purpose' makes 'the idealistic theory' . . . also 'an evolutionary theory' (p. 207), where personality is emphasized and the goal is 'the realization of the purpose implied in the capacities of one's nature' (p. 197).

3. From the standpoint of social theory: "According to the later hedonists, my immediate motive for considering the welfare of society is a feeling of sympathy with the aims of my fellow men. . . . The original (and still the real) motive is that of self interest" (p. 78). According to the idealistic view, "a completely developed individual—one in whom all latent capacities had been brought to actual expression—would be completely identical with the self or mind of society. If Peter and Paul were completely self-conscious their interests and their selves would be absolutely harmonious and identical; they would be no longer two persons, but one" (p. 214). "The individual in the idealistic sense is the organized expression of special functions and capacities" (p. 219). "Briefly expressed the idealistic society is an organism" (p. 220).

4. As a system of philosophy: The hedonist's standpoint is that of external observation; "the idealistic standpoint is the standpoint of self-consciousness" (p. 228). The hedonist's method of definition and his criterion of reality is that of physical science; "the idealistic method is the teleological method which explains the peculiarities of objects by reference to their purpose as distinct from the method of exact science which explains them by reference to their mechanical structure" (p. 228). "The hedonist's psychology is that of the associational school" (p. 97). The

hedonist 'chooses as his type of human activity that which is relatively automatic' (p. 231). The idealist's view is that of the 'apperceptionists' (p. 231); he 'chooses the process of deliberation and voluntary decision as his type of mental fact' (p. 230). In biology hedonism holds to 'the Lamarckian side' (p. 104), while idealism accounts for evolution as a result of 'the constitution of the germ plasm,' the school of Weismann (p. 235). In cosmology hedonism in its more extreme aspects 'affirms that consciousness as such has no real existence' (p. 108). "The idealist, to the extent that he is similarly rigorous, goes equally far in the opposite direction" (p. 239), and holds consciousness to be 'finally the one principle determining the activities of the world as a whole' (p. 240).

The first thirty pages of the book, where the introductory material is frequently thrown into the form of questions, serves well the double purpose of indicating the later treatment and of stimulating interest.

GEORGE R. MONTGOMERY.

YALE UNIVERSITY.

Kants Lehre vom Glauben. Eine Preisschrift der Krugstiftung der Universität Halle-Wittenberg. Von ERNST SÄNGER, Ph.D. Mit einem Geleitwort von Professor Dr. HANS VAHINGER. Leipzig: Verlag der Dürr'schen Buchhandlung, 1903. Pp. xii + 170.

This monograph is a painstaking and thorough study of the Kantian doctrine of faith from the sources in Kant's own writings, which are exhaustively investigated in their whole extent, beginning with the pre-critical treatises and ending with the letters. The aim of the author is purely expository. Hence he confines himself to the historical method of treatment, offering here and there only so much of interpretation as may serve to bring out the development and the meaning of the Kantian positions, and by way of criticism admitting none but criticism of that 'immanent' sort which springs from the accurate statement of the various formulations of the original doctrine. Dr. Sängers work, therefore, is rather a compilation than a substantive discussion of Kant's moral philosophy, but a compilation of a very exact and valuable kind. If he has not endeavored to contribute to the movements of vital importance which have followed from the effort of Kant to furnish morals and religion with a new and impregnable foundation, he has successfully accomplished his more modest purpose of completely and precisely exhibiting the classical passages in which the Kantian theory found its original expression. So that his results constitute an invaluable aid to the many who still are seeking, now to estimate the doctrine of practical reason at its real worth, now to utilize the views which Kant defended as the basis of their own conclusions. The importance of inquiries of this type is further indicated by the very suggestive 'Geleitwort' of Professor Vaihinger, to whom also Dr. Sängers is indebted for the idea of his own work.

The account of Kant's doctrine falls naturally into three sections, of which the second, 'The Doctrine in the Critical Writings,' is by far the most important. In comparison with this, the first section, 'The Doctrine in the Pre-Critical Writings,' called for no more than a brief dis-

cussion; while the third, 'Die Lehre in Kants Nachlass,' is wrought out with greater detail than most readers will consider indicated, unless to prove the relative unimportance of the citations in question. The middle section, on the contrary, contains the substance of the treatise. Here the fidelity of the author in the execution of his task comes into full view, as well as his scholarly equipment for the work which he had in hand. With diligent care he has gone through the entire cycle of the critical treatises, both small and great, and has faithfully set down the references bearing on the principal subject, with brief expositions and summations added which facilitate the understanding of Kant's meaning and the comprehension of his theory in its connections with his philosophy as a whole. Such a discussion, of course, leads into the heart of Kantianism, and raises many of the principal problems of Kantian interpretation. Concerning these, agreement with Dr. Sanger's views was not always to be expected; perhaps it would not in every case be desirable. But it is not for such results that students of Kant will value his work the most. Its significance consists rather in its usefulness as a guide- and source-book for the study of the classical originals, and employed for this purpose it will be found to possess great merit.

A. C. ARMSTRONG.

WESLEYAN UNIVERSITY.

Notes on a Case of Successful Operation for Congenital Cataract in an Adult. R. LATTI. *British Journal of Psychology*, June, 1904, Vol. I., Part 2, pp. 135-150.

The author gives extracts from the pamphlet by Dr. A. M. Ramsay on a case of successful operation for cataract, and supplements the account with observations which he himself made on the patient some weeks after the operation. It is a case of a highly intelligent adult who had learned while still blind to walk freely about his native village, to work in the harvest field, and even acceptably to arrange bouquets of flowers for market. He seems to have relied chiefly on his sense of hearing, which was so acute that he could recognize persons by the sound of their respiration or tell when he passed an open doorway by the different sound of his own foot-fall. The flowers he identified and arranged by smell, having been told what ones would go well together. He does not think that he relied much on currents of air striking the face ('facial perception'), but mentions that in telling the number of persons in a room he had a sense of 'fulness' which seemed to come from some other sense than smell or hearing.

The patient, whose name was Carruth, had small eyes with lenses completely cataractous, irides natural, and a pronounced alternating convergent squint. He was 'unable to distinguish objects, although he could tell day from night, and could easily perceive a light and locate it accurately.' Before, and for some time after, the operation the eyes moved about constantly and uncontrollably. The two eyes were operated on a week apart, and the patient remained dazed for about ten days after the last operation. But he then began to make the visual acquaintance

of objects very readily. He began to notice colors at once, and, except in the case of green, could always recognize a color after having been told its name. With green he had more difficulty, and it may be that he is somewhat *photerythrous*. In artificial light he had as it were to learn the colors over again.

The observations on the patient's first visual perception of form were not searching. 'When asked to distinguish between a ball and a toy brick, he looked at them attentively for a considerable time, his hands meanwhile moving nervously, as if he were trying to translate what he saw by comparing it with an imaginary tactile impression, and then he described both correctly.' But Latta 'found that, before the cube and sphere experiment was made, he had had visual experience of the difference between things straight and curved.' Unlike Cheselden's classic patient, Carruth did not suffer from a visual chaos, and his difficulties were in identifying the new things seen with the old things felt, rather than in building up a consistent visual field *de novo*. Latta seems to ascribe this to the maturity of the patient, his organized 'pre-visual experience.' But this experience was in fact merely pre-operational, for if before the operations Carruth could by means of his eyes 'easily perceive a light and locate it accurately,' it is obvious that the operations did nothing more than to give him much clearer retinal images. His visual space was already well organized. His subsequent experience was merely a process of refining his visual discrimination, and for this reason throws little light on the theories of space-perception. The faculty which Carruth did not have already organized was that for perceiving depth, but the development of this, if it ever did develop, was not investigated.

Carruth soon lost the power to move about confidently in the dark. He could call up visual images somewhat less than a month after the operations, and some six months thereafter his dreams seem to have been mainly visual. Even in his blind state he believes that he never experienced an odor in a dream.

On the whole, this paper is a somewhat desultory clinical report of slight importance in itself, and interesting only when put alongside of the earlier cases of successful operations on the blind.

EDWIN B. HOLT.

HARVARD UNIVERSITY.

Retinal Local Signs. WALTER F. DEARBORN. *Psychological Review*, July-September, 1904, Vol. XI, Nos. 4-5, pp. 297-307.

Dr. Dearborn sets out to cast light experimentally on that one of Lotze's three hypotheses regarding local signs, which says that "the stimulation of each point, through an 'interweaving' of the nerve fibers from the surface of the retina and the ocular motor nerves, causes an eye movement definite enough to bring the fovea immediately to the point of excitation." It would follow from this hypothesis that the local sign of any such excentric point on the retina will be the kinaesthetic feeling of the eye movement (or perchance the feeling of innervation, or possibly both together) through the angle subtended by the arc from this point

to the macula. And if this is true, it must follow that the power of space discrimination of the retina can be neither more nor less accurate than these eye movements (or their corresponding innervations) which are made in order to bring the stimulation of any excentric point on to the fovea. But Dodge and Cline have already called attention to certain errors in the immediate fixation of excentric visual stimuli. The author, therefore, proposes to compare the size of such errors in movement with the spacial discrimination of the same excentric points, that is, their threshold for twoness and their threshold for least perceptible movement.

Dr. Dearborn finds that both these threshold discriminations are always much finer than is the ability to move the eye so as to bring an excentric stimulation on to the fovea. Thus in one subject the error of movement in bringing the stimulation of a certain excentric point on to the fovea was $1^{\circ} 48'$, whereas the threshold for twoness at that same excentric point was between $28'$ and $41'$, and the threshold for perceiving movement was but very little over $5'$. The results are, therefore, adverse to the Lotzean hypothesis.

This is a careful and thoroughly intelligent piece of work. It is to be remarked, however, that we have here the same difficult problem which has come up in the experiments of Müller and Schumann on lifted weights, —that of the relation between the idea (reproduced muscle sensation, feeling of innervation, or whatever it may be) which precedes the movement, and the muscle sensations which later report what the movement has actually been. Also the fact that the threshold for twoness on any excentric region is so different from the threshold of perceived movement on the same region, shows that the situation is otherwise exceedingly complicated. Doubtless, however, Dr. Dearborn is amply justified in concluding that the Lotzean hypothesis in its primitive form does not adequately explain the facts.

EDWIN B. HOLT.

HARVARD UNIVERSITY.

Aristotle's Posterior Analytics. JOHN WATSON. *Philosophical Review*, January and March, 1904, pp. 1-15, 143-158.

In these two articles, Professor Watson has given an abstract of Aristotle's *Posterior Analytics*, a work which, he says, 'has had an influence upon the history of human thought out of all proportion to its length.' In what it aims to do, the abstract is admirably successful, presenting concisely and with perfect clearness what in the original is not open to systematic interpretation except for careful reading. Apart from their excellence as an abstract, the two papers, if we mistake not, would seem to be a kind of sign of the philosophical times in America; for the fact that articles which, instead of being commentary for Aristotelian scholars, pretend to be nothing more than a barest outline of the *Posterior Analytics*, should appear in a leading American philosophical journal, seems to point to a widespread lack of first-hand knowledge of Aristotle's treatise. Professor Watson's articles are timely if this inference is justifiable, and they should be effective in helping to 'revive' the *Analytics* on this side of the water.

The abstract is especially excellent in its right proportioning of Aristotle's treatment of the deductive and inductive phases of demonstrative reasoning. Without arguing the point, that is, merely by a faithful reproduction of the thought of the *Analytics*, Professor Watson shows how fundamental for Aristotle induction was, and yet how, for him, it never could be the completing process in scientific knowledge. Science is the knowledge of the cause or ground ($\tau\delta\ \delta\iota\acute{o}\tau\epsilon$). Induction can only, at best, present us with the fact of invariable concomitance; it can not itself pass to the causal conclusion of 'absolute invariability,' to $\tau\delta\ \kappa\alpha\theta\acute{o}\lambda\omicron\upsilon$ in the strictest sense. Thus it merely supplies the material for the intuitive causal conclusion of reason ($\nu\omicron\upsilon\varsigma$). As such, however, it is indispensable. How the transition is made from the bare presentation of invariable concomitance to causal concomitance is a question that Aristotle answers by the doubtless unsatisfactory appeal to $\nu\omicron\upsilon\varsigma$. Professor Watson, in one of his very few comments, says in this regard: "Though it can hardly be denied that the transition from invariable concomitance to absolute invariability is hard to justify, it must be said, in defense of Aristotle, that his doctrine is based upon the principle that nature is not a sphere in which pure contingency prevails, but is on the whole subject to law. This, indeed, is a presupposition for which Aristotle can supply no adequate justification; but granting its truth, it is natural to suppose that when by induction we have discovered certain invariable conjunctions, the mind is able to seize upon the universal principle which these conjunctions suggest." No doubt the Aristotelian theory of $\nu\omicron\upsilon\varsigma$ as, in its knowledge of primary principles, a $\xi\epsilon\iota\varsigma$, or capacity, is unsatisfactory because of its utter vagueness, yet it marks the important effort made by Aristotle to give due weight not only to the empirical processes but also to the obvious, and indeed logically necessary, intuitional grasp of principles. Professor Watson gives a very excellent summary of Aristotle's rather obscure account of definition, as well as of his important distinction of the various meanings of universality, and of his much-discussed last chapter of the treatise. In reading these articles, one wishes that Professor Watson had not, in order to make his work more easily effective, passed so lightly over difficulties of interpretation and theory with which the *Analytics* are replete. But perhaps the sacrifice of detail to the emphatic outlining of the whole must here be allowed justifiable.

H. A. OVERSTREET.

UNIVERSITY OF CALIFORNIA.

JOURNALS AND NEW BOOKS

PSYCHOLOGICAL REVIEW. Article Section. May, 1904. Vol. XI., No. 3. *The Law of Attraction in Relation to Some Visual and Tactual Illusions* (pp. 143-178): HAYWOOD J. PEARCE.—Quantitative study of an illusion similar to that of Müller-Lyer: the apparent length of a straight line is increased by the presence of secondary straight lines

lying as prolongations of the primary line, but separated from it by vacant intervals. This influence increases with the length of the secondary lines as well as of the primary line, and with the nearness of the secondary to the primary, measured from center to center. The length of the vacant interval is also a factor, but when this is eliminated the exaggerating influence of the secondary lines obeys closely a law identical with the physical law of attraction ($f = Cmm' \div D^2$). These facts throw doubt upon most of the current explanations of the Müller-Lyer illusion. *The Relation between the Vaso-Motor Waves and Reaction Times* (pp. 179-185): WM. R. WRIGHT. - By recording a subject's reaction times and at the same time taking a plethysmographic tracing of his hand, it was found that the reaction was quickest during the period of constriction, and lowest during full dilation. *On the Horopter* (pp. 186-203): GEORGE T. STEVENS. - Helmholtz's determination of horopters rests on two false premises: he assumed the vertical meridian of the eye to be normally inclined, whereas it is truly vertical in normally set eyes; and he defined corresponding points in terms of retinal distances alone, whereas the important thing is the rotation angle of the points from the macula. The author presents a fresh determination of the horopter for several positions of the eyes. If, as is very common, the eyes are not properly set, strained positions of the head result from the effort to secure a satisfactorily placed horopter, and various ailments ensue. *The Logical and Psychological Distinction between the True and the Real* (pp. 204-210): C. L. HERRICK. - Current confusions in the use of the terms 'real' and 'true' can be eliminated by aid of the dynamic or functional philosophy, according to which the real is the primary, immediate datum, partaking of feeling more than of knowledge, while the true is that which is known to stand in mutually consistent relations with other elements of knowledge. *The Period of Conversion* (pp. 210-216): G. A. TAWNEY. - Methodological criticism of recent studies of conversion and existence, especially on the distinction between conversion in general and conversion to any particular religion. The former is experienced by every normal person in adolescence. *The Genetic Progression of Psychic Objects* (pp. 216-221): J. MARK BALDWIN. - A schematic tracing of the process of development of interest, attention, control and other 'modes' as associated with the different grades of objects from objects of sense and memory up to the objects of scientific moral and esthetic consciousness. Emphasis is laid on 'fancy objects' and 'play objects' as essential stages in this development. Notes: *On the Attributes of Sensation* (pp. 221-222): M. W. CALKINS. - Dualism is not properly an attribute of sensation. *Editor's Note* (p. 222.).

REVUE PHILOSOPHIQUE. June, 1904. *L'Education de la Mémoire à l'École* (pp. 569-586): J. J. VAN BIERVLIET. - Do the humanistic studies make better professional scientists? This and like questions should be decided by statistical study of how special faculties can be trained. The author's system of memory-training is expounded. *La Logique des Sentiments* (pp. 587-611): TH. RIBOT. - This is a study of

emotional reasoning, whose terms are value-concepts, whose principle is finality. It seeks what will bring success, not what is true, and is careless of contradiction. *Ce que devient la Logique* (pp. 612-625): A. REY. - Logic should study first the modes of thought employed in every branch of knowledge. It is based upon the history of science, and forms part of sociology. On it stands the art of logic, or the practice of reasoning correctly in every region of investigation. *Revue générale: quelques Publications recents sur la Morale* (pp. 626-654): J. LEGOND. - Among the seven books reviewed are G. E. Moore's *Principia Ethica*, Schiller's *Humanism*, Fite's *Introductory Study of Ethics*. *Analyses et Comptes Rendus*: H. Höffding, *Philosophische Probleme*: L. POITEVEN. H. Parenty, *Les Tourbillons de Descartes et la Science moderne*: A. REY. L. Laberthonnière, *Essais de Philosophie religieuse*: L. ARRÉAT. A. Dorner, *Grundriss der Religionsphilosophie*: J. LEGOND. M. Pelletier, *L'Association des Idées dans la Manie aiguë et dans la Débilité mentale*: J. ROGUES DE FURSAC. P. Rossi, *Les Suggesteurs et la Foule*: G. L. DUPRAT. Ossip-Lourié, *Le Bonheur et l'Intelligence*: L. ARRÉAT. O. Weininger, *Geschlecht und Charakter*: C. Bos. K. Marbe, *Experimentellpsychologische Untersuchungen über das Urtheil*: FOUCAULT. *Revue des Périodiques Étrangers*. Livres Deposées. Nécrologie. Table des Matières du Tome LVII.

REVUE PHILOSOPHIQUE. July, 1904, Vol. LIX, No. 7. *Le sourire: étude psychophysiologique* I. (pp. 1-23): G. DUMAS. - The smile is not merely an attenuated laugh. It is a purely mechanical expression, affecting certain facial muscles because they are the most easily moved in the body. Everything able to increase the tonicity of these muscles produces a smile. Analogies in monkeys, dogs, cats and birds. *La finalité en biologie* (pp. 24-37): E. GOBLOT. - Finality exists whenever a series of events is directed in a definite direction. An efficient cause is also final when it contributes to such direction. The idea of an effort toward life is gratuitous and useless in biology. This 'natural' finality distinguishes the field of biology, and human volitions must be described in terms of it; not conversely. *La logique des sentiments*, II. (pp. 38-71): T. RIBOT. - Five chief types of 'affectif' reasoning: Sentimental reasoning, the least intellectual, as it operates in the sentiments of fear, love and jealousy. Unconscious reasoning, whether static or dynamic, as displayed in conversion and transformation. Imaginative reasoning, the most important; though itself sentimental, it is used in subordination to 'rational' reasoning; though based on faith, it is used in the discovery of objective fact. The reason of justification, a poverty-stricken and highly sentimental type, displayed in clinging to past beliefs. Composite reasoning, reflective as contrasted with the other spontaneous types. It is best exemplified in eloquence. Discussion; *La priorité de la philosophie des idées-forces sur la doctrine de M. R. Ardigò* (pp. 72-75): A. FOUILLEE. - Analyses et comptes rendus: Sabatier, *Philosophie de l'effort*, FR. PAULHAN. Gaultier, *La fiction universelle*, FR. P. REY, *Leçons élémentaires de psychologie et de philosophie*, G. RAGEOT. *Annales de l'institute in-*

ternational de sociologie, J. DELVAILLE. Bunge, *Principes de psychologie individuelle et sociale*, FR. PAULHAN. Groos, *Das Seelenleben des Kindes*, E. BLUM. Grasset, *Leçons de clinique médicale*, G. DUMAS. Grasset, *Le spiritisme devant la science*, G.-L. DUPRAT. *Revue des Périodiques étrangers*. Livres déposés.

REVUE DE PHILOSOPHIE. June 1904. *La Théorie physique, son Objet et sa Structure* (3e article) (pp. 643-671): P. DUHEM. - History of science shows that hope of explanation has led to disagreements in theories, while desire to describe faithfully has in general suggested discovery. Mach's attitude in regard to the economy of thought is traced in the history of thought. *Le Hasard dans les Découvertes Scientifiques* (pp. 672-678): F. MENTRÉ. - It was the doctrine of Cl. Bernard that all science originates by chance, not of set purpose; facts are thrust upon us from without and suggest a certain systematization to our minds. This agrees with the thesis defended in the preceding number. *La Littérature des Fous* (pp. 679-702): REJA. - What constitutes the work of art in literature is revealed in the writings of unbalanced minds, because here the logical and conventional motives are absent. Examples follow (*à suivre*). *Pour l'Histoire du mot "ἄπειρον"* (pp. 703-707): P. TANNERY. - Anaximander probably used this word to refer to that which can not be experienced (the apparent void). *Sur l'"ἄπειρον" d'Anaximandre* (pp. 708-715): H. GUYOT. - This term can not be exactly translated by one word. It is between the infinite of Aristotle and that of Descartes, a complex, confused idea. *Analyses et Comptes Rendus*: P. DuBois, *Les Psychonévroses et leur Traitement moral*: P. VIGNON. P. Sollier, *Les Phénomènes d'Autoscopie*: C. DE KIRWAN. M. de Wolf, *Introduction à la Philosophie néoscolastique*: COMTE DE VORGES. *Périodiques*. Bulletin de l'Enseignement philosophique. Nécrologie. Bibliographie. Chronique.

REVUE DE PHILOSOPHIE. July, 1904. Vol. IV., No. 7. *Sur le Matérialisme scientifique ou mécanisme antitéléologique, à propos d'un récent traité de Biologie (fin)* (pp. 5-37): P. VIGNON. - The mechanical system, an analytical monism, neglects the specific activity of synthetic causes. We must return to the genuine Aristotelian inductive study of things, without preconceptions. Agnosticism is irrational, for though the essences of things and the absolute are not completely to be known, we do know the existence of the eternal first cause, apart from the moving material. *La littérature des fous; la prose (fin)* (pp. 38-50): RÉJA. - Many examples are given, in which, though there are present grace, force and even satire, the logical connection continually gives way to assonance. The worst afflicted turn to verse. *La Composition du Théétète et M. Chipelli* (pp. 51-63): A. DIES. - No clear case has been made for the double editing of the Theatetus. *Fénelon métaphysicien. Œuvres inédites (fin)* (pp. 64-89): E. GRISELLE. - Three unpublished works of which the first discusses how the essence of the soul can be thought, since will is not thought; while the others debate whether the essence of body is extension, in view of the doctrine that body has no essence, and of the

dogma of transubstantiation. *L'Intellect agent des Scholastiques* (pp. 90-92): V. BERNIES. - Further argument against its validity. *Analyses et Comptes Rendus* (pp. 93-110): J. Naujokas, *De Causa finali apud Anaxagoram, Socratem et Platonem*: C. HUIT. L. Favre, *Notes sur l'histoire générale des Sciences*: F. MENTRÉ. E. Picard, *Comment traiter l'enfant à l'École?*: F. MENTRÉ. E. Tavernier, *La Morale et l'esprit laïque*: C. BESSE. T. de Visan, *Paysages introspectives; poesies*: J. CHAURAND. Sommaire des Revues. Bulletin de l'enseignement philosophique.

BULLETIN DE LA SOCIÉTÉ FRANÇAISE DE PHILOSOPHIE. May, 1904. Séance commémorative du Centenaire de la Mort de Kant. *Les Harmonies de la Pensée Kantienne* (pp. 118-124): V. DELBOS. - The Critique of Judgment is the most interesting of Kant's Critiques, as filling the gulf between Pure and Practical Reason and giving a general *Weltanschauung*. Mechanism is inadequate to explain life, but finality includes mechanism. Nature and freedom, feeling and law, are harmonious. Though we can not know the absolute, we can know, do, and believe as much as we need. *Kant et la Mathématique Moderne* (pp. 125-134): L. COUTURAT. - Kant's distinction between logic and mathematics as conceptual and intuitional has been refuted by modern mathematics, which is conceptual. Intuition would never justify the universality of a geometrical proof. Number presupposes neither time nor space. Leibniz was more modern than Kant here. *La Morale de Kant et le Temps Présent* (pp. 135-144): E. BOUTROUX. - Kant's ethic is wrongly called abstract and non-social. Kant, in distinguishing duty from sensuous inclination, had to emphasize the universality of duty. The categorical imperative does not exclude the hypothetical, nor individual conduct, social motives. Present tendencies are just in harmony with Kant.

ZEITSCHRIFT FÜR PHILOSOPHIE UND PHILOSOPHISCHE KRITIK. Band 124, Heft. 2. *Zur Problem einer normativen Ästhetik* (pp. 125-7): W. WAEZOLDT. - The various views briefly contrasted. *Energetik, Mechanik und Leben* (pp. 128-154): E. V. HARTMANN. - As to the relation of vital autonomy to the laws of energetics and mechanics, after close analysis of the terms involved, two views remain possible. Life is not a force in the mechanical sense; but vital force as a regular tendency and power superposed on inorganic laws is valid in qualitative energetics. The depreciation of the energy of the universe makes perhaps improbable but not impossible the infinite duration of life at its highest spiritual condition. *Zur Kritik des psycho-physischen Parallelismus* (pp. 154-172): M. WENTSCHER. - Parallelism in the monadological form that Paulsen defends leads to difficulties that render it inferior to the theory of interaction as advocated by Busse. But a truly monistic parallelism might get over the difficulties. *Über das religiöse Gefühl* (pp. 173-200): G. GERBER. - Religious feeling is gradually ripened

by experience of the gravity and suffering of life. Its basis is the sense of self as the cause of outward effects. It arises from the loss of this sense of self in that of the power of a foreign cause, when we attribute to that cause the unity attached to the self. Monotheism is the product of critical thought. *Die Schopenhauer-Porträts* (pp. 201-208): C. TÖWE. - A classified list. *Recensionen* (pp. 208-236), including the following: Lipps, *Das Selbstbewusstsein; Empfindung und Gefühl*: DÜRR. W. WUNDT, *Gustav Theodor Fechner. Rede zur feier seines 100 jährigen Geburtstages*: O. SIEBERT. S. Saenger, *John Stuart Mill, Sein Leben und Lebenswerk*: H. REICHEL. E. Storch, *Muskelfunction und Bewusstsein*: DÜRR. M. F. Scheler, *Die transcendente und die psychologische Methode*: H. BROMSE. E. Naville, *Les Philosophies negatives*: E. DUTOIT. R. Stammler, *Die Lehre von dem richtigen Rechte*: H. REICHEL. Notices. New Books. Periodicals.

VIERTELJAHRSSCHRIFT FÜR WISSENSCHAFTLICHE PHILOSOPHIE UND SOZIOLOGIE. May, 1904, Band XXVIII., Heft 2. *Egoismus und Altruismus*, II. (pp. 123-165): D. GUSTL. - Definitions of fundamental terms. Individual must give way to social psychology in the solution of the question. Self-love, not self-seeking, and sympathy, as the two basal types of impulse. Reverence as their synthesis. Comradeship more important than sex relations in the foundation of social life. The true standard of the moral will is the maxim, act so that at each instant you attain the maximum of your practical will. *Ein Neues Bevölkerungsgesetz* (pp. 167-191): F. OPPENHEIMER. - In the law of population as usually stated to-day, three quite different ideas are jumbled together, those of Malthus and Ricardo. The pessimistic outlook of those theories is opposed. *Schopenhauer und die wissenschaftliche Philosophie*, II., (pp. 193-230): C. v. BROCKDORFF. - Schopenhauer's relations to the bases of the exact disciplines. His criticism of the assumed omniscience of mechanics. He differs with the modern devotee of energetics in that even energy was to him mere appearance. There was a struggle in his mind between philosophy as an art and philosophy as a science. *Herbert Spencer und Albert Schäffle* (pp. 231-239): P. BARTH. - Spencer failed to note more than the external synthesis of society. His ethics suffer from naturalism. Schäffle, though less original, keen and comprehensive than Spencer, supplements the service the latter rendered, in that he grasps the inner spiritual aspects of society. Notices: R. Hoenigswald, *Zur Kritik der Machschen Philosophie*, H. VOESTE. L. Busse, *Geist und Körper, Seele und Leib*, J. W. A. HICKSON. G. Vidari, *Elementi di Etica*, FR. ORESTANO. And a dozen short notices.

Asturaro, A. *Il Materialismo storico e la sociologia generale*. Genova: libr. Moderna edit. 1904. 16 + 308 pp. 2.50 L.

Busse, L. *Die Weltanschauungen der grossen Philosophen der Neuzeit*. Leipzig: Treubner. 1904. 1.25 m.

Foerster, Fr. W. *Lebenskunde*. Berlin: G. Reimer. 1904. 3 m.

Gardiner, H. N. *Jonathan Edward's Sermons*. New York: Macmillan Co. \$0.25.

- Gerard, J. *The Old Riddle and the Newest Answer*. 1904. London: Longmans & Co. 5 s. net.
- Huntington, Edward V. *Sets of Independent Postulates for the Algebra of Logic*. Reprinted from the *Transactions of the American Mathematical Society*, Vol. 5, No. 3, pp. 288-309, July, 1904.
- Kahlbaum, G. *Monographien aus der Geschichte der Chemie, VII Heft. Jacob Berzelius. Amadeo Avogadro und die Molekulartheorie*. Leipzig: Barth. 1904. 8vo. 5 m.
- Kakasn, O. *The Ideals of the East*. New York: Dutton. \$1.50 net.
- Oloff, R. *Die Religionen der Völker und Gelehrten aller Zeiten*. Berlin: Walther. 1904. 8vo. 3 m.
- Rathlef, E. *Goethe pathologisch*. Riga: Jonck und Poliewsky in Komm. 1904. 8vo. .80 m.
- Saintyoes, P. *La réforme intellectuelle du clergé et la liberté d'enseignement*. Paris: Nourry. 1904. 11 + 343 pp.
- Schulte-Tigges, August. *Philosophische Proprärentik auf naturwissenschaftlicher Grundlage*. Berlin: Georg Reimer. 1904.
- Seailles, G. *Das künstlerische Genie*. Übersetzt von Marie Borst. Leipzig: Seeman. 1904. 8vo. 3 m.
- Stephen, Sir Leslie. *Hobbes. English Men of Letters*. New York: Macmillan Co. 1904. \$0.75 net.
- Stich, H. *Mark Aurch, der Philosoph auf dem röm Kaiserthron*. Gütersloh: Bertelmann. 1904. 8vo. 1 m.
- Sutro, E. *Duality of Thought and Language*. London: K. Paul. 6 s. net.
- Taylor, A. E. *Elements of Metaphysics*. New York: Macmillan Co. 16 + 419 pp. 8vo. \$2.60 net.
- Veblen, Oswald. *A System of Axioms for Geometry*. Reprinted from the *Transactions of the American Mathematical Society*, Vol. 5, No. 3, pp. 343-384, July, 1904.
- Windelband, W. *Über Willensfreiheit*. Tübingen: Mohr. 1904. 8vo. 3.60 m.

NOTES AND NEWS

PROFESSOR L. BUSSE, of Königsberg, has been called to a professorship of philosophy at Münster, in succession to Professor E. Addickes, who has been appointed professor at Tübingen.

DR. J. BURT MINER, during the past year instructor in psychology at the University of Illinois, has been appointed instructor in philosophy at the University of Iowa.

DR. BURTIS BURR BREESE, now of the University of Tennessee, has been appointed professor of psychology at the University of Cincinnati.

THE JOURNAL OF PHILOSOPHY

PSYCHOLOGY AND SCIENTIFIC METHODS

DOES 'CONSCIOUSNESS' EXIST?

'THOUGHTS' and 'things' are names for two sorts of object, which common sense will always find contrasted and will always practically oppose to each other. Philosophy, reflecting on the contrast, has varied in the past in her explanations of it, and may be expected to vary in the future. At first, 'spirit and matter,' 'soul and body,' stood for a pair of equipollent substances quite on a par in weight and interest. But one day Kant undermined the soul and brought in the transcendental ego, and ever since then the bipolar relation has been very much off its balance. The transcendental ego seems nowadays in rationalist quarters to stand for everything, in empiricist quarters for almost nothing. In the hands of such writers as Schuppe, Rehmke, Natorp, Münsterberg—at any rate in his earlier writings, Schubert-Soldern and others, the spiritual principle attenuates itself to a thoroughly ghostly condition, being only a name for the fact that the 'content' of experience is *known*. It loses personal form and activity—these passing over to the content—and becomes a bare *Bewusstheit* or *Bewusstsein überhaupt*, of which in its own right absolutely nothing can be said.

I believe that 'consciousness,' when once it has evaporated to this estate of pure diaphaneity, is on the point of disappearing altogether. It is the name of a nonentity, and has no right to a place among first principles. Those who still cling to it are clinging to a mere echo, the faint rumor left behind by the disappearing 'soul' upon the air of philosophy. During the past year, I have read a number of articles whose authors seemed just on the point of abandoning the notion of consciousness,¹ and substituting for it that of an absolute experience not due to two factors. But they were not quite radical enough, not quite daring enough in their negations. For twenty years past I have mistrusted 'consciousness' as an entity; for seven or eight years past I have suggested its non-existence to my students, and tried to give them its pragmatic equivalent

¹Articles by Baldwin, Ward, Bawden, King, Alexander and others. Dr. Perry is frankly over the border.



in realities of experience. It seems to me that the hour is ripe for it to be openly and universally discarded.

To deny plumply that 'consciousness' exists seems so absurd on the face of it—for undeniably 'thoughts' do exist—that I fear some readers will follow me no farther. Let me then immediately explain that I mean only to deny that the word stands for an entity, but to insist most emphatically that it does stand for a function. There is, I mean, no aboriginal stuff or quality of being, contrasted with that of which material objects are made, out of which our thoughts of them are made; but there is a function in experience which thoughts perform, and for the performance of which this quality of being is invoked. That function is *knowing*. 'Consciousness' is supposed necessary to explain the fact that things not only are, but get reported, are known. Whoever blots out the notion of consciousness from his list of first principles must still provide in some way for that function's being carried on.

I

My thesis is that if we start with the supposition that there is only one primal stuff or material in the world, a stuff of which everything is composed, and if we call that stuff 'pure experience,' then knowing can easily be explained as a particular sort of relation towards one another into which portions of pure experience may enter. The relation itself is a part of pure experience; one of its 'terms' becomes the subject or bearer of the knowledge, the knower,² the other becomes the object known. This will need much explanation before it can be understood. The best way to get it understood is to contrast it with the alternative view; and for that we may take the recentest alternative, that in which the evaporation of the definite soul-substance has proceeded as far as it can go without being yet complete. If neo-Kantism has expelled earlier forms of dualism, we shall have expelled all forms if we are able to expel neo-Kantism in its turn.

For the thinkers I call neo-Kantian, the word consciousness today does no more than signalize the fact that experience is infeasibly dualistic in structure. It means that not subject, not object, but object-plus-subject is the minimum that can actually be. The subject-object distinction meanwhile is entirely different from that between mind and matter, from that between body and soul. Souls were detachable, had separate destinies; things could happen to them. To consciousness as such nothing can happen, for, timeless itself, it

² In my 'Psychology' I have tried to show that we need no knower other than the 'passing thought.'

is only a witness of happenings in time, in which it plays no part. It is, in a word, but the logical correlative of 'content' in an Experience of which the peculiarity is that *fact comes to light* in it, that *awareness of content* takes place. Consciousness as such is entirely impersonal—'self' and its activities belong to the content. To say that I am self-conscious, or conscious of putting forth volition, means only that certain contents, for which 'self' and 'effort of will' are the names, are not without witness as they occur.

Thus, for these belated drinkers at the Kantian spring, we should have to admit consciousness as an 'epistemological' necessity, even if we had no direct evidence of its being there.

But in addition to this, we are supposed by almost every one to have an immediate consciousness of consciousness itself. When the world of outer fact ceases to be materially present, and we merely recall it in memory, or fancy it, the consciousness is believed to stand out and to be felt as a kind of impalpable inner flowing, which, once known in this sort of experience, may equally be detected in presentations of the outer world. "The moment we try to fix our attention upon consciousness and to see *what*, distinctly, it is," says a recent writer, "it seems to vanish. It seems as if we had before us a mere emptiness. When we try to introspect the sensation of blue, all we can see is the blue; the other element is as if it were diaphanous. Yet it can be distinguished, if we look attentively enough, and know that there is something to look for."³ "Consciousness" (*Bewusstheit*), says another philosopher, "is inexplicable and hardly describable, yet all conscious experiences have this in common that what we call their content has this peculiar reference to a center for which 'self' is the name, in virtue of which reference alone the content is subjectively given, or appears. . . . While in this way consciousness, or reference to a self, is the only thing which distinguishes a conscious content from any sort of being that might be there with no one conscious of it, yet this only ground of the distinction defies all closer explanations. The existence of consciousness, although it is the fundamental fact of psychology, can indeed be laid down as certain, can be brought out by analysis, but can neither be defined nor deduced from anything but itself."⁴

'Can be brought out by analysis,' this author says. This supposes that the consciousness is one element, moment, factor—call it what you like—of an experience of essentially dualistic inner constitution, from which, if you abstract the content, the consciousness will remain revealed to its own eye. Experience, at this rate, would be much like a paint of which the world pictures were made.

³ G. E. Moore: *Mind*, Vol. XII., N. S., p. 450.

⁴ Paul Natorp: 'Einleitung in die Psychologie,' 1888, pp. 14, 112.

Paint has a dual constitution, involving, as it does, a menstruum⁵ (oil, size or what not) and a mass of content in the form of pigment suspended therein. We can get the pure menstruum by letting the pigment settle, and the pure pigment by pouring off the size or oil. We operate here by physical subtraction; and the usual view is, that by mental subtraction we can separate the two factors of experience in an analogous way—not isolating them entirely, but distinguishing them enough to know that they are two.

II

Now my contention is exactly the reverse of this. *Experience, I believe, has no such inner duplicity; and the separation of it into consciousness and content comes, not by way of subtraction, but by way of addition*—the addition, to a given concrete piece of it, of other sets of experiences, in connection with which severally its use or function may be of two different kinds. The paint will also serve here as an illustration. In a pot in a paint-shop, along with other paints, it serves in its entirety as so much saleable matter. Spread on a canvas, with other paints around it, it represents, on the contrary, a feature in a picture and performs a spiritual function. Just so, I maintain, does a given undivided portion of experience, taken in one context of associates, play the part of a knower, of a state of mind, of ‘consciousness’; while in a different context the same undivided bit of experience plays the part of a thing known, of an objective ‘content.’ In a word, in one group it figures as a thought, in another group as a thing. And, since it can figure in both groups simultaneously we have every right to speak of it as subjective and objective both at once. The dualism connoted by such double-barrelled terms as ‘experience,’ ‘phenomenon,’ ‘datum,’ ‘*Vorfindung*’—terms which, in philosophy at any rate, tend more and more to replace the single-barrelled terms of ‘thought’ and ‘thing’—that dualism, I say, is still preserved in this account, but reinterpreted, so that, instead of being mysterious and elusive, it becomes verifiable and concrete. It is an affair of relations, it falls outside, not inside, the single experience considered, and can always be particularized and defined.

The entering wedge for this more concrete way of understanding the dualism was fashioned by Locke when he made the word ‘idea’ stand indifferently for thing and thought, and by Berkeley when he said that what common sense means by realities is exactly what the

⁵ “Figuratively speaking, consciousness may be said to be the one universal solvent or menstruum, in which the different kinds of psychic acts and facts are contained, whether in concealed or in obvious form.” G. T. Ladd: ‘Psychology, Descriptive and Explanatory,’ 1894, p. 30.

philosopher means by ideas. Neither Locke nor Berkeley thought his truth out into perfect clearness, but it seems to me that the conception I am defending does little more than consistently carry out the 'pragmatic' method which they were the first to use.

If the reader will take his own experiences, he will see what I mean. Let him begin with a perceptual experience, the 'presentation,' so called, of a physical object, his actual field of vision, the room he sits in, with the book he is reading as its center; and let him for the present treat this complex object in the common-sense way as being 'really' what it seems to be, namely, a collection of physical things cut out from an environing world of other physical things with which these physical things have actual or potential relations. Now at the same time it is just *those self-same things* which his mind, as we say, perceives; and the whole philosophy of perception from Democritus's time downwards has been just one long wrangle over the paradox that what is evidently one reality should be in two places at once, both in outer space and in a person's mind. 'Representative' theories of perception avoid the logical paradox, but on the other hand they violate the reader's sense of life, which knows no intervening mental image but seems to see the room and the book immediately just as they physically exist.

The puzzle of how the one identical room can be in two places is at bottom just the puzzle of how one identical point can be on two lines. It can, if it be situated at their intersection; and similarly, if the 'pure experience' of the room were a place of intersection of two processes, which connected it with different groups of associates respectively, it could be counted twice over, as belonging to either group, and spoken of loosely as existing in two places, although it would remain all the time a numerically single thing.

Well, the experience is a member of diverse processes that can be followed away from it along entirely different lines. The one self-identical thing has so many relations to the rest of experience that you can take it in disparate systems of association, and treat it as belonging with opposite contexts. In one of these contexts it is your 'field of consciousness'; in another it is 'the room in which you sit,' and it enters both contexts in its wholeness, giving no pretext for being said to attach itself to consciousness by one of its parts or aspects, and to outer reality by another. What are the two processes, now, into which the room-experience simultaneously enters in this way?

One of them is the reader's personal biography, the other is the history of the house of which the room is part. The presentation, the experience, the *that* in short (for until we have decided *what* it is it must be a mere *that*) is the last term of a train of sensations,

emotions, decisions, movements, classifications, expectations, etc., ending in the present, and the first term of a series of similar 'inner' operations extending into the future, on the reader's part. On the other hand, the very same *that* is the *terminus ad quem* of a lot of previous physical operations, carpentering, papering, furnishing, warming, etc., and the *terminus a quo* of a lot of future ones, in which it will be concerned when undergoing the destiny of a physical room. The physical and the mental operations form curiously incompatible groups. As a room, the experience has occupied that spot and had that environment for thirty years. As your field of consciousness it may never have existed until now. As a room, attention will go on to discover endless new details in it. As your mental state merely, few new ones will emerge under attention's eye. As a room, it will take an earthquake, or a gang of men, and in any case a certain amount of time, to destroy it. As your subjective state, the closing of your eyes, or any instantaneous play of your fancy will suffice. In the real world, fire will consume it. In your mind, you can let fire play over it without effect. As an outer object, you must pay so much a month to inhabit it. As an inner content, you may occupy it for any length of time rent-free. If, in short, you follow it in the mental direction, taking it along with events of personal biography solely, all sorts of things are true of it which are false, and false of it which are true if you treat it as a real thing experienced, follow it in the physical direction, and relate it to associates in the outer world.

III

So far, all seems plain sailing, but my thesis will probably grow less plausible to the reader when I pass from percepts to concepts, or from the case of things presented to that of things remote. I believe, nevertheless, that here also the same law holds good. If we take conceptual manifolds, or memories, or fancies, they also are in their first intention mere bits of pure experience, and, as such, are single *thats* which act in one context as objects, and in another context figure as mental states. By taking them in their first intention, I mean ignoring their relation to possible perceptual experiences with which they may be connected, which they may lead to and terminate in, and which then they may be supposed to 'represent.' Taking them in this way first, we confine the problem to a world merely 'thought-of' and not directly felt or seen. This world, just like the world of percepts, comes to us at first as a chaos of experiences, but lines of order soon get traced. We find that any bit of it which we may cut out as an example is connected with distinct groups of asso-

ciates, just as our perceptual experiences are, that these associates link themselves with it by different relations,⁶ and that one forms the inner history of a person, while the other acts as an impersonal 'objective' world, either spatial and temporal, or else merely logical or mathematical, or otherwise 'ideal.'

The first obstacle on the part of the reader to seeing that these non-perceptual experiences have objectivity as well as subjectivity will probably be due to the intrusion into his mind of *percepts*, that third group of associates with which the non-perceptual experiences have relations, and which, as a whole, they 'represent,' standing to them as thoughts to things. This important function of the non-perceptual experiences complicates the question and confuses it; for, so used are we to treat percepts as the sole genuine realities that, unless we keep them out of the discussion, we tend altogether to overlook the objectivity that lies in non-perceptual experiences by themselves. We treat them, 'knowing' percepts as they do, as through and through subjective, and say that they are wholly constituted of the stuff called consciousness, using this term now for a kind of entity, after the fashion which I am seeking to refute.⁷

Abstracting, then, from percepts altogether, what I maintain is, that any single non-perceptual experience tends to get counted twice over, just as a perceptual experience does, figuring in one context as an object or field of objects, in another as a state of mind: and all this without the least internal self-diremption on its own part into consciousness and content. It is all consciousness in one taking; and, in the other, all content.

I find this objectivity of non-perceptual experiences, this complete parallelism in point of reality between the presently felt and the remotely thought, so well set forth in a page of Münsterberg's 'Grundzüge,' that I will quote it as it stands.

"I may only think of my objects," says Professor Münsterberg; "yet, in my living thought they stand before me exactly as perceived objects would do, no matter how different the two ways of apprehending them may be in their genesis. The book here lying on the table before me, and the book in the next room of which I think and which I mean to get, are both in the same sense given realities for me, realities which I acknowledge and of which I take account. If you agree that the perceptual object is not an idea

⁶ Here as elsewhere the relations are of course *experienced* relations, members of the same originally chaotic manifold of non-perceptual experience of which the related terms themselves are parts.

⁷ Of the representative function of non-perceptual experience as a whole, I will say a word in a subsequent article: it leads too far into the general theory of knowledge for much to be said about it in a short paper like this.

within me, but that percept and thing, as indistinguishably one, are really experienced *there, outside*, you ought not to believe that the merely thought-of object is hid away inside of the thinking subject. The object of which I think, and of whose existence I take cognizance without letting it now work upon my senses, occupies its definite place in the outer world as much as does the object which I directly see."

"What is true of the here and the there, is also true of the now and the then. I know of the thing which is present and perceived, but I know also of the thing which yesterday was but is no more, and which I only remember. Both can determine my present conduct, both are parts of the reality of which I keep account. It is true that of much of the past I am uncertain, just as I am uncertain of much of what is present if it be but dimly perceived. But the interval of time does not in principle alter my relation to the object, does not transform it from an object known into a mental state. . . . The things in the room here which I survey, and those in my distant home of which I think, the things of this minute and those of my long-vanished boyhood, influence and decide me alike, with a reality which my experience of them directly feels. They both make up my real world, they make it directly, they do not have first to be introduced to me and mediated by ideas which now and here arise within me. . . . This not-me character of my recollections and expectations does not imply that the external objects of which I am aware in those experiences should necessarily be there also for others. The objects of dreamers and hallucinated persons are wholly without general validity. But even were they centaurs and golden mountains, they still would be 'off there,' in fairy land, and not 'inside' of ourselves."⁸

This certainly is the immediate, primary, naïf, or practical way of taking our thought-of world. Were there no perceptual world to serve as its 'reductive,' in Taine's sense, by being 'stronger' and more genuinely 'outer' (so that the whole merely thought-of world seems weak and inner in comparison), our world of thought would be the only world, and would enjoy complete reality in our belief. This actually happens in our dreams, and in our day-dreams so long as percepts do not interrupt them.

And yet, just as the seen room (to go back to our late example) is *also* a field of consciousness, so the conceived or recollected room is *also* a state of mind; and the doubling-up of the experience has in both cases similar grounds.

The room thought-of, namely, has many thought-of couplings

⁸ 'Grundzüge der Psychologie,' Vol. I., p. 48.

with many thought-of things. Some of these couplings are inconstant, others are stable. In the reader's personal history the room occupies a single date—he saw it only once perhaps, a year ago. Of the house's history, on the other hand, it forms a permanent ingredient. Some couplings have the curious stubbornness, to borrow Royce's term, of fact; others show the fluidity of fancy—we let them come and go as we please. Grouped with the rest of its house, with the name of its town, of its owner, builder, value, decorative plan, the room maintains a definite foothold, to which, if we try to loosen it, it tends to return, and to reassert itself with force.⁹ With these associates, in a word, it coheres, while to other houses, other towns, other owners, etc., it shows no tendency to cohere at all. The two collections, first of its cohesive, and, second, of its loose associates, inevitably come to be contrasted. We call the first collection the system of external realities, in the midst of which the room, as 'real,' exists; the other we call the stream of our internal thinking, in which, as a 'mental image,' it for a moment floats.¹⁰ The room thus again gets counted twice over. It plays two different rôles, being *Gedanke* and *Gedachtes*, the thought-of-an-object, and the object-thought-of, both in one; and all this without paradox or mystery, just as the same material thing may be both low and high, or small and great, or bad and good, because of its relations to opposite parts of an environing world.

As 'subjective' we say that the experience represents; as 'objective' it is represented. What represents and what is represented is here numerically the same; but we must remember that no dualism of being represented and representing resides in the experience *per se*. In its pure state, or when isolated, there is no self-splitting of it into consciousness and what the consciousness is 'of.' Its subjectivity and objectivity are functional attributes solely, realized only when the experience is 'taken,' *i. e.*, talked-of, twice, considered along with its two differing contexts respectively, by a new retrospective experience, of which that whole past complication now forms the fresh content.

The instant field of the present is at all times what I call the 'pure' experience. It is only virtually or potentially either object or subject as yet. For the time being, it is plain, unqualified actuality or existence, a simple *that*. In this *naïf* immediacy it is of

⁹ Cf. A. L. Hodder: 'The Adversaries of the Skeptic,' N. Y., 1899, pp. 94–99.

¹⁰ For simplicity's sake I confine my exposition to 'external' reality. But there is also the system of ideal reality in which the room plays its part. Relations of comparison, of classification, serial order, value, also are stubborn, assign a definite place to the room, unlike the incoherence of its places in the mere rhapsody of our successive thoughts.

course *valid*; it is *there*, we *act* upon it; and the doubling of it in retrospection into a state of mind and a reality intended thereby, is just one of the acts. The 'state of mind,' first treated explicitly as such in retrospection, will stand corrected or confirmed, and the retrospective experience in its turn will get a similar treatment; but the immediate experience in its passing is always 'truth,'¹¹ practical truth, *something to act on*, at its own movement. If the world were then and there to go out like a candle, it would remain truth absolute and objective, for it would be 'the last word,' would have no critic, and no one would ever oppose the thought in it to the reality intended.¹²

I think I may now claim to have made my thesis clear. Consciousness connotes a kind of external relation, and does not denote a special stuff or way of being. *The peculiarity of our experiences, that they not only are, but are known, which their 'conscious' quality is invoked to explain, is better explained by their relations—these relations themselves being experiences—to one another.*

IV

Were I now to go on to treat of the knowing of perceptual by conceptual experiences, it would again prove to be an affair of external relations. One experience would be the knower, the other the reality known; and I could perfectly well define, without the notion of 'consciousness,' what the knowing actually and practically amounts to—leading-towards, namely, and terminating-in percepts, through a series of transitional experiences which the world supplies. But I will not treat of this, space being insufficient.¹³ I will rather consider a few objections that are sure to be urged against the entire theory as it stands.

¹¹ Note the ambiguity of this term, which is taken sometimes objectively and sometimes subjectively.

¹² In the *Psychological Review* for July of this year, Dr. R. B. Perry has published a view of Consciousness which comes nearer to mine than any other with which I am acquainted. As present, Dr. Perry thinks, every field of experience is so much 'fact.' It becomes 'opinion' or 'thought' only in retrospection, when a fresh experience, thinking the same object, alters and corrects it. But the corrective experience becomes itself in turn corrected, and thus experience as a whole is a process in which what is objective originally forever turns subjective, turns into our apprehension of the object. I strongly recommend Dr. Perry's admirable article to my readers.

¹³ I have given a partial account of the matter in *Mind*, Vol. X., p. 27, 1885, and in the *Philosophical Review*, Vol. II., p. 105, 1895. See also C. A. Strong's article in the *JOURNAL OF PHILOSOPHY, PSYCHOLOGY AND SCIENTIFIC METHODS*, Vol. I., p. 253, May 12, 1904. I hope myself very soon to recur to the matter in this *JOURNAL*.

V

First of all, this will be asked: "If experience has not 'conscious' existence, if it be not partly made of 'consciousness,' of what then is it made? Matter we know, and thought we know, and conscious content we know, but neutral and simple 'pure experience' is something we know not at all. Say *what* it consists of—for it must consist of something—or be willing to give it up!"

To this challenge the reply is easy. Although for fluency's sake I myself spoke early in this article of a stuff of pure experience, I have now to say that there is no *general* stuff of which experience at large is made. There are as many stuffs as there are 'natures' in the things experienced. If you ask what any one bit of pure experience is made of, the answer is always the same: "It is made of *that*, of just what appears, of space, of intensity, of flatness, brownness, heaviness, or what not." Shadworth Hodgson's analysis here leaves nothing to be desired. Experience is only a collective name for all these sensible natures, and save for time and space (and, if you like, for 'being') there appears no universal element of which all things are made. " /

VI

The next objection is more formidable, in fact it sounds quite crushing when one hears it first.

"If it be the self-same piece of pure experience, taken twice over, that serves now as thought and now as thing"—so the objection runs—"how comes it that its attributes should differ so fundamentally in the two takings. As thing, the experience is extended; as thought, it occupies no space or place. As thing, it is red, hard, heavy; but who ever heard of a red, hard or heavy thought? Yet even now you said that an experience is made of just what appears, and what appears is just such adjectives. How can the one experience in its thing-function be made of them, consist of them, carry them as its own attributes, while in its thought-function it disowns them and attributes them elsewhere. There is a self-contradiction here from which the radical dualism of thought and thing is the only truth that can save us. Only if the thought is one kind of being can the adjectives exist in it 'intentionally' (to use the scholastic term); only if the thing is another kind, can they exist in it constitutively and energetically. No simple subject can take the same adjectives and at one time be qualified by it, and at another time be merely 'of' it, as of something only meant or known."

The solution insisted on by this objector, like many other common-sense solutions, grows the less satisfactory the more one turns

it in one's mind. To begin with, *are* thought and thing as heterogeneous as is commonly said?

No one denies that they have some categories in common. Their relations to time are identical. Both, moreover, may have parts (for psychologists in general treat thoughts as having them); and both may be complex or simple. Both are of kinds, can be compared, added and subtracted and arranged in serial orders. All sorts of adjectives qualify our thoughts which appear incompatible with consciousness, being as such a bare diaphaneity. For instance, they are natural and easy, or laborious. They are beautiful, happy, intense, interesting, wise, idiotic, focal, marginal, insipid, confused, vague, precise, rational, casual, general, particular, and many things besides. Moreover, the chapters on 'Perception' in the Psychology-books are full of facts that make for the essential homogeneity of thought with thing. How, if 'subject' and 'object' were separated 'by the whole diameter of being,' and had no attributes in common, could it be so hard to tell, in a presented and recognized material object, what part comes in through the sense-organs and what part comes 'out of one's own head'? Sensations and apperceptive ideas fuse here so intimately that you can no more tell where one begins and the other ends, than you can tell, in those cunning circular panoramas that have lately been exhibited, where the real foreground and the painted canvas join together.¹⁴

Descartes for the first time defined thought as the absolutely unextended, and later philosophers have accepted the description as correct. But what possible meaning has it to say that, when we think of a foot-rule or a square yard, extension is not attributable to our thought? Of every extended object the *adequate* mental picture must have all the extension of the object itself. The difference between objective and subjective extension is one of relation to a context solely. In the mind the various extents maintain no necessarily stubborn order relatively to each other, while in the physical world they bound each other stably, and, added together, make the great enveloping Unit which we believe in and call real Space. As 'outer,' they carry themselves adversely, so to speak, to one another, exclude one another and maintain their distances; while, as 'inner,' their order is loose, and they form a *durcheinander* in which unity is lost.¹⁵ But to argue from this that inner experience is absolutely

¹⁴ Spencer's proof of his 'Transfigured Realism' (his doctrine that there is an absolutely non-mental reality) comes to mind as a splendid instance of the impossibility of establishing radical heterogeneity between thought and thing. All his painfully accumulated points of difference run gradually into their opposites, and are full of exceptions.

¹⁵ I speak here of the complete inner life in which the mind plays freely with its materials. Of course the mind's free play is restricted when it seeks to copy real things in real space.

inextensive seems to me little short of absurd. The two worlds differ, not by the presence or absence of extension, but by the relations of the extensions which in both worlds exist.

Does not this case of extension now put us on the track of truth in the case of other qualities? It does; and I am surprised that the facts should not have been noticed long ago. Why, for example, do we call a fire hot, and water wet, and yet refuse to say that our mental state, when it is 'of' these objects, is either wet or hot? 'Intentionally,' at any rate, and when the mental state is a vivid image, hotness and wetness are in it just as much as they are in the physical experience. The reason is this, that, as the general chaos of all our experiences gets sifted, we find that there are some fires that will always burn sticks and always warm our bodies, and that there are some waters that will always put out fires; while there are other fires and waters that will not act at all. The general group of experiences that *act*, that do not only possess their natures intrinsically, but wear them adjectively and energetically, turning them against one another, comes inevitably to be contrasted with the group whose members, having identically the same natures, fail to manifest them in the 'energetic' way. I make for myself now an experience of blazing fire; I place it near my body; but it does not warm me in the least. I lay a stick upon it, and the stick either burns or remains green, as I please. I call up water, and pour it on the fire, and absolutely no difference ensues. I account for all such facts by calling this whole train of experiences unreal, a mental train. Mental fire is what won't burn real sticks; mental water is what won't necessarily (though of course it may) put out even a mental fire. Mental knives may be sharp, but they won't cut real wood. Mental triangles are pointed, but their points won't wound. With 'real' objects, on the contrary, consequences always accrue; and thus the real experiences get sifted from the mental ones, the things from our thoughts of them, fanciful or true, and precipitated together as the stable part of the whole experience-chaos, under the name of the physical world. Of this our perceptual experiences are the nucleus, they being the originally *strong* experiences. We add a lot of conceptual experiences to them, making these strong also in imagination, and building out the remoter parts of the physical world by their means; and around this core of reality the world of laxly connected fancies and mere rhapsodical objects floats like a bank of clouds. In the clouds, all sorts of rules are violated which in the core are kept. Extensions there can be indefinitely located; motion there obeys no Newton's laws.

VII

There is a peculiar class of experiences to which, whether we take them as subjective or as objective, we *assign* their several natures as attributes, because in both contexts they affect their associates actively, though in neither quite as 'strongly' or as sharply as things affect one another by their physical energies. I refer here to *appreciations*, which form an ambiguous sphere of being, belonging with emotion on the one hand, and having objective 'value' on the other, yet seeming not quite inner nor quite outer, as if a diremption had begun but had not made itself complete.

Experiences of painful objects, for example, are usually also painful experiences; perceptions of loveliness, of ugliness, tend to pass muster as lovely or as ugly perceptions; intuitions of the morally lofty are lofty intuitions. Sometimes the adjective wanders as if uncertain where to fix itself. Shall we speak of seductive visions or of visions of seductive things? Of wicked desires or of desires for wickedness? Of healthy thoughts or of thoughts of healthy objects? Of good impulses, or of impulses towards the good? Of feelings of anger, or of angry feelings? Both in the mind and in the thing, these natures modify their context, exclude certain associates and determine others, have their mates and incompatibles. Yet not as stubbornly as in the case of physical qualities, for beauty and ugliness, love and hatred, pleasant and painful can, in certain complex experiences, coexist.

If one were to make an evolutionary construction of how a lot of originally chaotic pure experiences became gradually differentiated into an orderly inner and outer world, the whole theory would turn upon one's success in explaining how or why the quality of an experience, once active, could become less so, and, from being an energetic attribute in some cases, elsewhere lapse into the status of an inert or merely internal 'nature.' This would be the 'evolution' of the psychical from the bosom of the physical, in which the esthetic, moral and otherwise emotional experiences would represent a half-way stage.

VIII

But a last cry of *non possumus* will probably go up from many readers. "All very pretty as a piece of ingenuity," they will say, "but our consciousness itself intuitively contradicts you. We, for our part, *know* that we are conscious. We *feel* our thought, flowing as a life within us, in absolute contrast with the objects which it so unremittingly escorts. We can not be faithless to this immediate intuition. The dualism is a fundamental *datum*: Let no man join what God has put asunder."

My reply to this is my last word, and I greatly grieve that to many it will sound materialistic. I can not help that, however, for I, too, have my intuitions and I must obey them. Let the case be what it may in others, I am as confident as I am of anything that, in myself, the stream of thinking (which I recognize emphatically as a phenomenon) is only a careless name for what, when scrutinized, reveals itself to consist chiefly of the stream of my breathing. The 'I think' which Kant said must be able to accompany all my objects, is the 'I breathe' which actually does accompany them. There are other internal facts besides breathing (intracerebral muscular adjustments, etc., of which I have said a word in my larger Psychology), and these increase the assets of 'consciousness,' so far as the latter is subject to immediate perception; but breath, which was ever the original of 'spirit,' breath moving outwards, between the glottis and the nostrils, is, I am persuaded, the essence out of which philosophers have constructed the entity known to them as consciousness. *That entity is fictitious, while thoughts in the concrete are fully real. But thoughts in the concrete are made of the same stuff as things are.*

I wish I might believe myself to have made that plausible in this article. In another article I shall try to make the general notion of a world composed of pure experiences still more clear.

WILLIAM JAMES.

HARVARD UNIVERSITY.

THE GENETIC METHOD IN PSYCHOLOGY

THE reporter of the last meeting of the Western Philosophical Association remarks, in this JOURNAL of May 12, among the tendencies of opinion displayed at the meeting, 'a reaction against the analytical psychology in favor of the functional and genetic.' Without raising the topic of 'functional psychology,' or the question as to how any psychology can be other than analytical, one may, not unprofitably, meditate a little upon the exact meaning of genetic psychology. 'The study of mental development,' an easy definition, is, after all, not too definite; it covers not only a variety of particular problems, but certain fundamental differences in point of view which demand radical differences of method. The distinction between ontogenetic and phylogenetic development is one of these; but not the most thoroughgoing. Another division of the problem is even more significant: are we to study the process of mental development in cross-section, or to trace its actual progress from one stage to the next?

If we consider these alternative possibilities with reference to the other distinction, that between race and individual development,

certain points about the methodology of genetic psychology, not new to themselves, may, perhaps, be put into clearer relation with each other. To begin with, taking race development in the broad sense which includes the whole process of the evolution of animal life, we have in the ordinary investigations of comparative or animal psychology on adult animals an instance of the cross-section method. What is the content of the mind of this particular animal, at this particular stage of biological and mental evolution? The parallel to this in ordinary, non-genetic psychology is the analytic study of the adult human mind. The problem presented by the psychology of the English sparrow is in itself no more of a genetic problem than that of the psychology of the adult American. Hence, whatever differences in method are involved in the two cases, they are not differences between a genetic method, on the one hand, and an analytical or any other non-genetic method, on the other. Various writers have amply discussed the problem presented by the 'interpretation of the animal mind'; we are familiar with the fact that, while in interpreting the human mind we have at our disposal the reports in language of our subject's introspection, in dealing with the animal mind we must rely upon watching the inarticulate behavior of a subject incapable of introspection; and we have learned to carry out 'Lloyd Morgan's canon' with a rigidity unthought of by its propounder. But whatever the precautions necessary in studying the mental processes of a given animal, such precautions do not constitute a genetic method, any more than do the special precautions necessary in interpreting the results of some laboratory problem of adult human psychology. If we could get a correct idea of the mental processes normal to every species of animal, we should have merely the raw material from which, by comparison, to extract a genetic psychology.

An immense difficulty characterizes such a task. On the other hand, precisely this method—of first getting a series of cross-sections at different stages and then, by comparison of these among themselves, arriving at an idea of the processes of development involved—is the one lying directly at hand in the study of individual development. The reason for this difference is, of course, that in the latter case all the stages are readily accessible to us. We have the individual at hand; we can take our cross-sections as often as we please, observing the precautions that make for accuracy; and, although the interpretation of a baby's mind, or the mind of a kitten, at a given moment, is no more a matter of genetic method than the interpretation of an adult mind, yet here one may collect the raw material so rapidly and pass so directly to comparison, that the distinction between the cross-section method and the historical method,

if one may so term the tracing of actual progress from one stage to another, is of much less importance.

Despite the fact that the collection of material by the cross-section plan is so much simpler for the ontogeny than for the phylogeny of mind, we do not find that the psychology of individual development is so far advanced, nor the case of phylogenetic psychology so hopeless, as we might expect. Especially when we read works on the development of the individual mind, our impression is that of having the series of cross-sections presented to us without the genetic psychology; there is no tracing of an evolutionary process whose laws are made out. On the other hand, despite the scanty and hard-won material, we are beginning to get glimpses of the bearing and rationale of the whole process of mental development in the world of animal life. The reason for this is not remote. It is harder to get *a posteriori* material, but easier to apply *a priori* principles in the study of mental phylogenesis, than in that of mental ontogenesis. While the actual course of mental development may be more readily traced in the individual than in the animal world at large, it is less difficult to explain mental development in the latter case than in the former.

The evolution of the individual mind is a problem whose answer is to a large extent hidden in the structure of the individual brain. We may know that process *B* regularly makes its appearance after process *A*, but when we ask why, there is nothing to be said except that a certain brain connection is perfected at this point. It may be because of some prehistoric condition of species development, or it may be a mere accidental resultant of forces far too complex and hidden ever to be traced out. But, while in mental ontogenesis the development of nervous structures in a certain predestined order is the sole basis for the appearance of mental functions in a given sequence, while, therefore, the causal relation is from nervous structure to mental function, the case is in a sense reversed when we deal with the evolution of mind in the animal kingdom. The main reason for the preservation of any complex nervous structure in phylogenesis must be the value to the organism of the accompanying mental process. Here, then, we can with some safety argue from mental process to nervous process, from the usefulness or harmfulness of a given psychosis to the development or non-development of the corresponding neurosis. We have thus not only a principle for the explanation of the facts obtained by investigation, but a basis for supplementing these facts by *a priori* predictions. If we can say with a fair degree of confidence that a certain course of development would have been contrary to an organism's needs, then we may maintain that it probably did not occur. If certain phases of

mental growth can have been of survival-value only when certain other phases were already present, then we may make assumptions about the sequence of these phases without waiting for the accumulation of material by the cross-section method.

Merely finding out what happens in the mind of an animal or of a child, at a certain given stage of development, calls for no method differing fundamentally from those used in ordinary psychology; only for certain special precautions. The task of genetic psychology proper is twofold: to trace the course of the changes that take place from stage to stage, and to understand, so far as possible, the reasons for these changes. Animal psychology, in the first part of its task, is greatly helped by the application of some form of the principle of natural selection; in the second, it must rely almost entirely upon this principle. Natural selection does not account for the origin of variations; it may be that they occur *per saltum*. But, even if it does not completely rationalize the process of mental evolution, it is the only universally accepted rationalizing principle we have at our service. Genetic psychology, in this sense, has scarcely begun its career. The preparatory cross-section work, even, is but just perfecting its methods; after the rash anthropomorphism of the early Darwinians there has grown up in natural reaction the tendency to accumulate facts without interpretation. But the interpretation is, nevertheless, an essential part of the science of genetic psychology.

In child psychology, however, there is little hope of getting behind the mere facts. For the present, our only glimpses of interpretation come when we can apply the laws of species development to the individual; and the difficulty and uncertainty of this attempt are sufficiently evident in the labors of the Clark University School. The individual mind may in its evolution be an epitome of the history of the species, but it is an epitome written in almost undecipherable shorthand.

MARGARET FLOY WASHBURN.

VASSAR COLLEGE.

DISCUSSION

MINOR LOGIC

I HAPPEN to have been staying for some months past (to my loss) within the range of two universities which do not yet take in the JOURNAL OF PHILOSOPHY, PSYCHOLOGY AND SCIENTIFIC METHODS, and I have only just seen the note by the editor of *Science*, in the second number, in reply to my little article, 'Some

Points in Minor Logic,' which appeared in the first number of the JOURNAL. That minor logic is the greatest thing in the world will hardly be asserted by any one; indeed, the very name is deprecatory, and strongly implies limitations. But that, within its proper limits, it may be legitimately appealed to, and that, in the particular instance in question, the criticism made was legitimate, are little theses which I feel called upon modestly to maintain.

What I had said was this:

"A recent writer in *Science* slips into a curious error in phraseology. He allows himself to speak of a 'superabundance of physicians going hand in hand with a shortage of patients as being attributed to,' etc. But the superabundance of physicians is the same thing as the shortage of patients (looked at from a different point of view), and a thing can not go hand in hand with itself."

Whereto the editor of *Science* objects as follows:

"I venture to suggest that Mrs. Franklin's comments illustrate the limitations of minor logic rather than a lapse in logic on the part of the writer. He was discussing the statistics of medical students, and the conclusion of his sentence (omitted by Mrs. Franklin) was: 'must be attributed to a decrease in the number of illnesses, a decrease due to the application of modern methods of preventive medicine.' The writer, of course, means that there has been an increase in the number of physicians as compared with the total population, and that, at the same time, the number of illnesses, as compared with the total population, has decreased, largely owing to the increased number of physicians. These statements are by no means the same."

Now, though this *apologia* concerning a very little matter—a matter that was designated in the first place only as an 'error in phraseology'—is very brief, it falls under two separate and distinct heads:

1. The conclusion of the sentence was 'omitted by Mrs. Franklin' because it had either no bearing upon the matter, or, if any, then one that only strengthens the indictment. For the attribution of 'the superabundance of physicians going hand in hand with a shortage of patients' simply to 'a decrease in the number of illnesses, a decrease due to the application of modern methods of preventive medicine,' so far from pointing to the explanation of the phrase as involving a double statement, distinctly points the other way. It indicates, as far as it goes, that *only* a decrease in the number of illnesses as compared with the population, and not *also* an increase of the number of physicians as compared with the population, was in the writer's mind. For surely an increase in the number of physicians *per population* could never have been brought about by

a decrease in the number of illnesses. Both Professor James, of Columbia, and Brouardel, from whom the remark of the writer in *Science* is directly and indirectly derived, make the statement correctly, and give as a reason for an absolute increase in the number of physicians the increased attractiveness of the medical profession.

2. But, even if the writer had 'of course' meant what, so far as appears, he did not mean at all, it would still remain true that he clothed his meaning in objectionable phraseology; and it was not the substance of what was meant, but the form in which it was put, that was the object of my innocent bit of criticism. 'Superabundance of physicians' is a phrase which conveys no suggestion whatever of *increase* in number, whether relative or absolute; to any one in the habit of using language accurately, it has by itself no meaning other than that of excess in comparison with the number needed, according to some understood standard. As nothing whatever appears in the context to indicate that the writer had in mind an increase in the number of physicians compared with the population, and as the subject immediately under discussion by him was the 'decided decrease in [the attendance at] the schools of medicine all along the line,' surely it can hardly be claimed that the expression which started this unexpected controversy was so blameless as to make its utilization as an illustration of a point in minor logic a thing that was not justifiable.

Finally, it may be permissible to point out that in a large domain of practical thought, this failure to notice—to notice constantly and instinctively—that some terms are necessarily of a purely relative nature, and that there is, accordingly, no distinction between two statements presenting opposite aspects of the same fact, is of very common occurrence. I refer to the domain of political economy, in which many a popular misunderstanding, the parent of prolonged and voluminous controversy, has arisen out of imperfect grasping of such truisms as that low prices mean dear money, that high efficiency of industry means low cost of production, and the like. And while much of the trouble here undoubtedly lies in the 'complexity of thought,' no one who is in the habit of following economic discussion can doubt that the trouble would be very perceptibly reduced by the avoidance of offenses against the phraseology required by minor logic, and, in particular, by the avoidance of just such haziness as to whether two statements are two or really only one as I had in mind in my little article.

CHRISTINE LADD FRANKLIN.

BALTIMORE, MARYLAND.

REVIEWS AND ABSTRACTS OF LITERATURE

La logique des sentiments. TH. RIBOT. *Revue philosophique*, 1904, June, pp. 587-611; July, pp. 38-71.

The papers contain the outlines of an investigation, a fuller account of which will be issued later. Affective states of mind produce physiological changes, form elements of the complex which is called will, and thus influence the train of thought. This is what usually is called the influence of sensibility on intelligence. This influence sometimes has the form of an association of ideas, sometimes, presupposing this, it becomes stronger and gives a new direction to the thoughts. The logic of feelings, though known for a long time, has been studied little; it has nothing in common with rational logic except reasoning, by which is meant the elimination of the middle term in a system of three terms. Often it is stated that the rules of logic are selected from experience as its natural product, but it is probable that reasoning in its origin had only practical purposes. At this stage there is no division between rational and affective logic; reasoning is not strictly adapted to its purpose, but experience reveals which suppositions usually coincide with the facts, and which as a rule do not. Our knowledge of the importance or uselessness of these terms is a measure of the progress of this primitive logic. Now arises the question: Why, after the development of rational logic, has the lower logic (which is often deceitful and productive of doubtful results) continued to exist? It has not been superseded, because rational logic can not be applied to the whole realm of knowledge, and because affective reasoning is used wherever practical interests are at stake. An essential criterion of affective reasoning is that it contains judgments and ideas of an emotional character, of which pure logic must be free. Now, as a matter of fact, it is the view of many that this ideal is never attained, but in certain cases the emotional element is so weak that it can be neglected, while in others it is very strong, forming the basis for the change of representations. These psychical states, which are called values, play an important part in the logic of feelings. Values, as defined by different authors, include intellectual (objective) and emotional (subjective) elements. Intelligence does not produce values, it merely enables us to recognize them; they have a biological origin, and the fact that their conditions are in general the same for all men accounts for their uniformity. Individual differences are, then, the reason for different valuations by different persons. Affective logic is a vital logic, and the conditions which have produced it are at work to protect it against rational logic. The sphere of affective reasoning is very large, and it is perhaps best to define it negatively as knowledge not acquired by purely rational methods. In ethics, esthetics, politics and sociology, judgments of value are of frequent occurrence and have been observed and described repeatedly, but the most perfect example of affective reasoning and the one which can be studied most conveniently, Ribot sees in religious thinking.

Affective reasoning is in its essence subjective, but by a frequent mistake it is generalized, causing endless misunderstandings, not only because different meanings are connected with words, but chiefly because they have a different emotional basis. There exists no general affective reasoning, but two types can be distinguished: wish and belief. The first finds reasons for a certain event, the second proves the validity of a more or less systematic complex of ideas. These forms of reasoning are not guided by the principle of contradiction; their only leading principle, according to which middle terms are found, is finality. These middle terms are connected and ordered with respect to two points of view: (1) accumulation, (2) climax. The first is the simpler, and, though often without artistic order, fulfills its purpose. The second acts, not necessarily by the use of words, but by producing certain states of mind which consecutively enforce conviction. Both tricks were known to the ancient rhetoricians who were led to them by experience. But it seems that still another way to enforce conviction is possible, which could be called the method of producing conviction by mere repetition. Indeed, we often observe that strong conviction results, if the same sentence without any reasons is repeated a number of times. It may become even a well-established principle and therefore this method is successfully applied where a strong conviction is desired.

In the second paper the use of these principles is shown, but of course only the outlines of the problems are traced. To facilitate description the following five types are distinguished: (1) The passionate, (2) the inconscient, (3) the imaginative, (4) the justifying and (5) the mixed; the last covers the thoughts built up on the basis of both logics. By the word passion Ribot means a lasting emotion, which of course has undergone certain changes and which is characterized by more or less permanent obsession and the resulting work of imagination. The influence of emotions on the act of judging is restricted to sudden alterations which are quickly corrected when the usual equilibrium is reestablished. Far greater is the influence of passions as shown in the three examples of timidity, love and jealousy. Besides motory, vasomotory and secretory symptoms, timidity is characterized by shyness and lack of presence of spirit in social intercourse. On this basis a subjective valuation of men and events is developed, which is not founded on logical considerations, but on vague intuitions and impressions, from which far-reaching conclusions are drawn. According to temperament, character, education and surroundings this system ends in pessimism, misanthropy, egotism or mysticism. Melancholia often gives the opportunity for the observation of the pathological development of those ideas, and in each case it can be decided only by the origin and not by the content of an idea, whether it is within the physiological limits of the normal or not.

Ribot distinguishes, according to the amount of rationality, three kinds of love. The first is the love that comes like a flash of lightning; there is no reason at all in it, unless one should call the immanent, organic logic of instinct reason. The second kind is the 'amour passion,' which gradually grows and under favorable circumstances may become

the dominating idea. We have a typical form of affective reasoning in what Stendhal calls crystallization,¹ by which name he designates the fact, that everything pleasant, which is noticed, is worked over into an attraction for the loved person. The result, of course, is an ideal. In respect to faults there is a little discrepancy between Stendhal and Ribot; the latter asserts that they are removed—a spotless image resulting from this process—the former holds that they are turned into so many new attractions. Certainly it is an interesting psychic process, and the usual way of describing it, as the influence of strong groups of association on others, is a circumlocution, since the strength of these centers of associations (*Associationscentren*) is manifested only in this way. The third kind of love is the intellectualized love of the troubadours; for the description of this also Ribot relies upon Stendhal ('De l'Amour,' pp. 298–307).

The conditions of the origin of jealousy are of heterogenous nature, since it is determined by the idea of real or expected possession, of the possibility of loss, and the real or imaginary cause thereof. This passion needs for its origin favorable conditions. In the initial stage it has more the character of general distrust, but very soon, with a penetration which almost equals that of the timid, a system of suspicions is established, in which actions as well as omissions, words unspoken as well as spoken, become weighty and convincing reasons for believing in the guilt of certain persons. Ribot believes that jealousy resembles in some respects the delusions of persecution, for both involve ability to observe the minutest details and to draw conclusions from them. For a thorough study of jealousy, the typical jealousy of the drunkard must not be neglected, for here we find the possibility of establishing by careful investigation the history of this passion in cases in which at least some organic causes are known.

By the name of unconscious reasoning Ribot designates all those processes of which only the results come to consciousness. For the explanation of these processes physiological and psychological theories have been tried, but with unsatisfactory results. Each theory has its own difficulties, and besides, both meet with the impossibility of resolving the train of thought into an automatism, which by itself will reach the goal. According to the theory of association, each idea is connected with others in every direction, and none of the current theories can explain how the suitable ideas are picked out. Without deciding anything about these explanations, the facts are studied in cases of conversion and of affective transformation. Every conversion consists in the substitution of one system of ideas for another which was up to the present predominant; it is an interchanging of values, a partial alteration of personality in its affective elements. This holds also for such non-religious conversions as are characterized by partial irrationality, which must account for the fact that the subjective proof is not valid for others. Totally different

¹ For the etymology of this word, see Stendhal, *Le rameau de Salzbourg* ('De l'Amour,' pp. 311–322).

from conversions are the transformations of emotions, in which emotions of well-specified types are slowly changed into others. It is a process possible only in complex emotions, a process which is only partially conscious, and which is generally directed by analogy. The special features of this analogy are not pointed out, but it seems that in ideas between which there is no logical analogy the only common or resembling elements are accompanying feelings.

A typical form of affective reasoning is the imaginative; it is based always on affective elements, on wishes, inclinations or aversions, which deprive the judgment of objective value. Examples are plentiful, but the investigation is confined to a general treatment of those of religious experience and belief, soothsaying and magic. In each case the influence of affective reasoning is shown, and thus is explained the durability of so weak a logic. It is certainly an interesting feature of this problem, that ideas which do not seem to be directly connected with the conditions of life become in so many cases the strongest centers of association.

Of most frequent occurrence is the mixed reasoning of the two logics. This form of reasoning exists where the solution of a problem is adopted, and a proof is constructed in accordance with the solution. It seems that in science also this method is practiced, but there it is only an assumption. The difference is very marked in the theory of morals, where the different systems disagree in nearly everything except the final conclusions; the explanation of this fact is, that the moving principle of the whole deductive process, though systematic in appearance, is an extralogical tendency. To this type of affective reasoning much attention has been devoted, especially with regard to the influence of the speaker on the crowd which is governed by him. Many elaborate systems of eloquence treat this theme, and all agree that it is to the passions the orator must appeal. The value of gesticulation and its influence upon the mind of the hearer is by itself a difficult psychological problem, and various theories have attempted to explain this fact of high theoretical interest.

In all these examples the prominent part of feelings and of affective reasoning is successfully pointed out. It hardly seems that Ribot's division is stringent at every point, but this is not to be expected from a first attempt at a division on a purely empirical basis. Another division is finally alluded to, which accounts for the practical origin of thinking. It is a teleological principle involved when the type of conservation and the type of expansion of the person are distinguished. To the former belongs the reasoning of timidity, justification and consolation; to the latter that which has an ideal as an aim and tries to enlarge the personality. The paper ends with a promise of special inquiries, which are to be published later.

F. M. URBAN.

HARVARD UNIVERSITY.

Voluntarism and Intellectualism: A Reconciliation. GUSTAV SPILLER.
The Philosophical Review, July, 1904, Vol. XIII., No. 4, pp. 420-428.

The purpose of this interesting article is to adjust the respective

claims of intellectualism, which the author says long held sway, and of voluntarism, which has arisen as a reaction against the exclusive claims of reason. Mr. Spiller insists that the object of science is determined by considerations of utility. Furthermore, intellectualism has ignored everything but physics and philosophy, has sought exclusively the *general*, has overlooked the fact that the various senses make us apprehend the world in a way which shall be satisfactory, and has forgotten that the exercise of reason in seeking truth is itself the satisfaction of a need. Strictly speaking, intellectualism is voluntarism.

Nevertheless pure voluntarism can not be accepted. For it makes the individual unlimited in choices and issues in absolute anarchy, theoretical and practical. Voluntarism must be organic and reasoned if it is to avoid the opposing pitfalls of superstition and scepticism. The true reconciliation of these apparently opposing views lies in an organic conception of human nature. The self is a growing and imperfect organism moved by many impulses. But in the social development of man the self becomes more organic and unified, grows into greater harmony with nature and with other selves. Truth is social and society limits the range of individual action. Yet we must not unduly repress the individual. The genius and reformer often appear antisocial, whereas, in truth, they represent a higher ideal, and a progressive society needs just these individual variations. Nature likewise has her limits which she sets to individual caprice. In an imperfect and growing society, then, there is room for variety of type. Nevertheless the various needs of the individual must be organized and various individuals must conform to social needs and to nature. The present ideal is to be regarded in the light of a progressive ideal. From this view-point we see that voluntarism is only a purification of intellectualism.

Mr. Spiller's considerations all seem to me pertinent and important. But I do not think they go quite to the root of the matter. The antithesis between voluntarism and intellectualism is truly a false one, but it is to be overcome and driven out only by a more profound conception of that *unity of the self* in thought, deed and feeling, which works in and through all the partial manifestations of self-consciousness in science, conduct, etc. It is in this basic unity of the self, as the common characteristic of all reason-possessing individuals, that we shall find the true and over-social as well as over-individual foundation for truth. The reality of the social order as well as of the physical order involves an epistemological reference to a permanent structural character in the universe, a character which is ever manifested in these two partial and dependent orders but which must continuously transcend them. This continuous and permanent structure of reality as the final test or point of reference for both thought and action disclose itself in that active and persisting unity of self-movement by which the self transcends the superficial antithesis of voluntarism and intellectualism.

J. A. LEIGHTON.

JOURNALS AND NEW BOOKS

REVUE DE PHILOSOPHIE. August, 1904. Vol. IV., No. 8. *La théorie physique, son objet, sa structure* (4e article) (pp. 121-169): P. DUHEM. - Abstract theories and mechanical models. It is characteristic of the English that they have, like Napoleon, ample minds, delighting in complexity of details, but abhorring general notions. They therefore set up mechanical models, visual images rather than a logical system. Thomson and Maxwell cited in illustration. *Du Phénomène Psychologique des Affinités* (pp. 160-200): R. DE LA GRASSERIE. - Several examples of antipathy and sympathy given, and an attempt made at classification. The phenomenon has so far been little observed because it is rather a tendency than a definite emotion. Man, and the world generally, is enveloped in a plexus of affinities well worthy of scientific study. *Aristote et Platon suivant Zeller*, I. (pp. 201-208): J. BULLIOT. - Zeller's interpretation of Aristotle's metaphysics is tinted with alien Hegelianisms. *Aristote a-t-il connu le 'Sophiste'?* (pp. 209-216): C. HUIT. - The proofs cited by Bomitz and Uberweg are insufficient. *La théorie physique d'après Descartes (lettre ouverte à M. Duhem)* (pp. 217-225): F. MEATRÉ. - Descartes' physical theory was well worked out; the contradictions apparent in his works should be attributed to his activities as a metaphysician. *L'abstraction* (pp. 226-231): J. GARDAIR. - An active intelligence as distinguished from a thinking intelligence is metaphysically necessary. *Analyses et Comptes Rendus*. J. Grasset, *L'idée médicale dans les romans de Paul Bourget*: B. VIGNON. C. FÉRÉ, *Travail et Plaisir*: E. BARON. A. D. Sertillanges, *Nos luttes; nos vraies ennemies; le patriotisme et la vie sociale*: M. DELAIRE. E. de Roberty, *Nouveau programme de sociologie*: E. BARON. Livres déposés.

ARCHIV FÜR GESCHICHTE DER PHILOSOPHIE. July, 1904. Band X., Heft. 4. *Entwicklung der arabischen und jüdischen Philosophie im Mittelalter*, II. (pp. 433-459): J. POLLAK. - Like the Arabian, the Jewish philosophy of the period rests entirely on its predecessors. Among others, the works of ibn Gabirol, Saadja, Abraham ben David, and Maimonides are discussed. *Ein Dialog aus der Akademie des Arkesilas* (pp. 460-479): E. BICKEL. - A discussion of the origin of the 'Alcibiades.' The conclusion is reached that it originated in the school of Archesilas. *Beiträge zur Kenntnis Shaftesburys* (pp. 480-499): R. ZIERTMANN. - This article is given to a detailed bibliography of Shaftesbury's writings. *Spinoza's Naturrecht* (pp. 500-515): K. WORM. - Spinoza's ethics has for its basis not the principle, might should be right, but that might is right. He does not really contradict his starting-point in saying that life under the rule of the state is good; it is the expression merely of a hypothetical imperative. He stands in the ranks with Marx and Spencer as opposed to Plato and Kant. *Die peripatetische Philosophie bei den Syrern und Arabern* (pp. 516-533): C. SAUTER. - Its development is traced in some detail through three stages of Syrian and three stages of Arabian philosophy to the thirteenth century. *Locke*,

eine kritische Untersuchung der Ideen des Liberalismus und des Ursprungs nationalökonomischer Anschauungsformen Schluss (pp. 534-560): G. JAEGER. - Locke's theory of the state has produced no valuable reforming ideas, burying under fictions the real aim of men. Even Marx could not break away from it, sharing with Locke the lack of an historical sense. The modern emphasis on the concept of purpose gives a fresh start to the solution of social problems. *Jahresbericht*, V.; *L'histoire de la philosophie en France* (1897-1902) (pp. 563-576): V. DELBOS. - The following are reviewed: É. Boutroux, *Études d'histoire de la philosophie*; G. Milhaud, *Les philosophes géomètres de la Grèce*; H. Delacroix, *Essai sur le mysticisme spéculatif en Allemagne au XIVE siècle*; L. Couturat, *La logique de Leibniz*; E. Halevy, *La formation du radicalisme philosophique*; L. Levy-Bruhl, *La philosophie d'Auguste Comte*. New Books.

ANNALEN DER NATURPHILOSOPHIE. July, 1904. Band III., Heft 4. *Über die Unbeweisbarkeit des Parallelaxioms* (pp. 349-354): L. FRAUNHOFER. - The most important corollary is the direct proof of the possibility of geometries of different types. *Elemente und Verbindungen* (pp. 355-380): W. OSTWALD. - It is now possible to base on the dynamics of chemistry rather than on the atomic theory the fundamental laws of constant proportions, multiple proportions and atomic weight. The precise nature of the obstacles to interchange of the elements described. *Die Relativität aller Bewegung und das Trägheitsgesetz* (pp. 381-388): H. KLEINPETER. - The law of inertia needs for its justification a system of coordination relative to which the apparent motion of the stars should disappear. *Der Mystizismus und die Klarheit des Denkens* (pp. 389-412): B. L. WITTES. - The two sources of Mysticism. Clearness as the most important of the four factors that determine the value of intellect. In proportion as mysticism disappears from religion it will extend its sphere in other realms. *Zur Geschichte der Antiperistasis* (pp. 413-441): K. MEYER GEB. BJERRUM. - The principle of peristalsis is that, if a quality is surrounded by its opposite, it increases in power. The principle is adopted by Plato, and defended by Aristotle. Even Bacon did not reject it. That was left to Robert Boyle. Its revival by Erman in 1825. *Biopsychologische Probleme* (pp. 442-448): K. LAMPRECHT. - Modern historical thought must seek the solution of two problems: the laws governing typical forms of national growth, and the nature of the unique socio-psychical development, the world-history. *Über harmonische Analyse von Musikstücken* (pp. 449-508): V. GOLDSCHMIDT. - In confirmation of the author's work, 'Über Harmonie und Complication,' the thesis is defended that the law of complication that governs crystal formation is also the key to musical harmony. After enlarging on the principles involved, an example is given in the analysis of Beethoven's 'Die Ehre Gottes.' One table. *New Books*, reviewed by W. O. Fuhrmann, *Das Psychotische Moment*. E. de la Sauce, *Stoff und Bewegung*. C. Güttler, *Wissen und Glauben*. A. Lang, *Nietzsche und die Deutsche Kultur*. R. Schweitzer, *Die Energie und die Entropie*. A. Seitz, *Willensfreiheit und moderner psychologischer Determinismus*. A. Lang, *Maine de Biran*

und die neuere Philosophie. G. Portig, *Die Grundzüge der monistischen und dualistischen Weltanschauung unter Berücksichtigung des neuesten Standes der Naturwissenschaft*. H. Marcus, *Die allgemeine Bildung in Vergangenheit, Gegenwart und Zukunft*. C. Beckenhaupt, *Bedürfnisse und Fortschritte des Menschengeschlechtes*. K. Lasswitz, *Wirklichkeiten*. A. Helfenstein, *Die Energie und ihre Formen*. A. Oelzelt-Newin, *Kleinere philosophische Schriften*. L. Stein, *Der Sinn des Daseins*. E. Rittelmeyer, *Friedrich Nietzsche und das Erkenntnisproblem*. P. Stern, *Grundprobleme der Philosophie*. I. *Das Problem der Gegenheit*. K. Joël, *Der Ursprung der Naturphilosophie aus dem Geiste der Mystik*.

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NOTES AND NEWS

DR. JAMES WARD, of Cambridge, England will be the guest of Princeton University from October 4th to 7th, during which time he will deliver three lectures on philosophy and three formal addresses on psychology.

MLLE. JOTEYKO, lecturer on psychology in the University of Brussels, has been elected vice-president of the Neurological Society of Belgium.

DR. H. AUSTIN AIKINS, professor of philosophy in Western Reserve University, is in Europe on leave of absence for the coming year.

STEWART MACDONALD, Ph.D. (Cornell), will succeed Professor I. Woodbridge Riley as professor of philosophy at the University of New Brunswick.

NATHAN E. TRUMAN, Ph.D. (Cornell), has been appointed assistant professor of Greek and philosophy at the University of South Dakota.

THE JOURNAL OF PHILOSOPHY

PSYCHOLOGY AND SCIENTIFIC METHODS

OF NOETIC STABILITY; AND BELIEF

I

IN preceding articles of this series¹ we have seen reason to hold (1) that what I have called the field of inattention, which in any moment stands contrasted with the field of attention, is the same as, and identical with, the Self to which the presentations within the field of attention are given; (2) that the Self and the presentations to the Self are fundamentally of the same nature; and (3) that, being systemically related, the fields of inattention and of attention—*i. e.*, the Self and the presentations to the Self—are always reciprocally efficient. In this article I shall ask the reader to consider a corollary of this view.

Sec. 1.—If we are warranted in holding that the condition of activity within the nervous system of a man, in any moment, is adequately symbolized by the wave surface of a liquid upon which a wave pattern appears, and if we consider any given neururgic pattern in itself, then what we have called the neururgic emphasis in the neururgic pattern must display a certain measure of stability. The emphasis may be in perfect harmony with the neururgic system as a whole, if we may so speak; in which case no obstruction to its development will occur. Or it may be so utterly out of harmony with the neururgic system that its stability can not be maintained. Between the maximum and the minimum of stability an indefinite number of gradations may appear; but each neururgic emphasis must display a more or less of stability.

Sec. 2.—If, then, our theory of a thoroughgoing neururgic and noëtic correspondence is valid, we may say that in a given noetic pattern, any noetic emphasis must display a certain measure of stability, which may vary indefinitely, from a maximum of what we may call complete stability to a minimum of what we may call complete instability.

¹ 'Of the Field of Inattention—The Self,' JOURNAL, July 21, and 'Of Conscious Efficiency,' JOURNAL, August 4.

It is this measure of stability which constitutes what I call the realness of the noetic emphasis or presentation. The noetic emphasis may be in perfect harmony with the noetic system as a whole; in which case no obstruction to its development will occur: then it has a maximum of realness. Or it may be so utterly out of harmony with the noetic system that its realness can not be maintained for a moment. Between the maximum and the minimum of noetic stability, or realness, an indefinite number of gradations may appear; but each noetic emphasis must display a more or less of this stability, or realness in relation to any given noetic pattern.

It is the recognition of the establishment of the realness of a given noetic emphasis which constitutes the experience which we call Belief.

Sec. 3.—The stability of a neururgic emphasis must always be determined by two factors: (1) what we may call the inner efficiency of the emphasis itself, which is for the most part determined by the forcefulness of environmental stimuli or of the resultants of such stimuli; and (2) the nature of the sum total of the activities of the mass of the whole nervous system as exclusive of the emphasis.

At times a careless view might lead us to think that the stability of a given neururgic emphasis is given solely by its own inner efficiency; but evidently this can never be actually true, if it is true that there is a thoroughgoing reciprocity of efficiency between all parts of the neururgic system. There must, if we may so speak, always be some measure of welcome, or rejection, of the emphasis by the rest of the neururgic system even when this is overlooked; and it would thus appear that the undifferentiable mass of unemphatic nervous activities always plays its part in determining the measure of stability displayed by a given neururgic emphasis.

In certain cases we should expect to note the appearance of incompatible neururgic emphases, the development of one of which would necessarily exclude the development of the other.

At times this incompatibility might result in a failure of the development of either of the two incompatible emphases, and a loss of stability in both. Or this deadlock might be broken in one of two ways: (1) by an increase of the inner efficiency of one of the incompatible emphases; or (2) by the process of the welcome of one, and the rejection of the other, by the unemphatic part of the neururgic system taken as a whole.

Sec. 4.—Correspondingly the realness of a noetic emphasis must always be determined by two factors: (1) by the inner efficiency of the noetic emphasis itself; and (2) by the nature of the whole noetic system as apart from the emphasis, that is by the nature of the field of inattention—*i. e.*, in our view, by the nature of the Self.

At times, a careless consideration might lead us to think that the

realness of a given noetic emphasis is given solely by its own inner efficiency; but clearly this can never be actually true. There must always be some measure of welcome, or rejection, of the noetic emphasis by the Self. It would thus appear that the Self always plays its part in determining the measure of realness displayed by a given noetic emphasis.

In certain cases we should expect to note the occurrence of incompatible noetic emphases, the development of one of which would necessarily exclude the development of the other.

At times this incompatibility might result in a failure of the development of either of the two incompatible noetic emphases, and a loss of realness in both. This we experience in cases of what we call persistent doubt.

Or this deadlock of doubt might be broken in one of two ways: (1) by an increase of the inner efficiency of one of the two incompatible noetic emphases; in which case psychic emphases would arise which would appear to be efficient in the establishment of the realness in one of the two incompatible noetic emphases, and the loss of realness in the other; or (2) by the process of welcome of one, and rejection of the other of the two incompatibles by the unemphatic part of the noetic system taken as a whole—*i. e.*, by the Self. When this process of welcome and rejection becomes explicit in a state of self-consciousness, then we experience Belief. Then the empirical ego—the simulacrum of the Self—appears as welcoming the one and rejecting the other; as establishing the realness of one, as determining the relative unrealness of the other. Thus, when we believe, we will to believe.

Sec. 5.—We thus find ourselves considering the problem which aroused so much discussion a few years ago in connection with Professor James's fascinating essays in his 'Will to Believe.' It is needless to say that the development of my thought in reference to this problem is due largely to Professor James's influence; nevertheless, although my view can scarcely be said to be opposed to his in any sense, yet it differs from his in some particulars which seem to me to have importance in the fact that they clear away certain obscurities which have led to the differences between him and his critics.²

As I understand Professor James, he holds: (1) that in some cases we are able to believe by an effort of will; and (2) that under certain conditions we are justified in doing so.

² I must refer the reader to an article on 'Belief and Will,' published in the *International Journal of Ethics* for April, 1899, for a fuller statement of my position than can be given here.

We are here dealing with two separate questions. The first is a question of psychological fact; the second is a question of ethical significance. I shall consider these two questions separately.

II

Sec. 6.—First as to the question of psychological fact. In relation to this I go beyond Professor James's position in maintaining that we never believe without willing to believe, and this I shall attempt to show in the sequel.

Those critics of Professor James's teaching who question whether we ever can will to believe must of course feel a still stronger repulsion to the doctrine I have thus baldly stated. They tell us that it is clear in a large number of cases, which can be studied in detail, that beliefs are forced upon us by forces extraneous to us—by environmental influences, by custom, by tradition; and they argue, therefore, that belief must always be thus determined for us.

Waiving for the moment the question of fact, it is worth noting that we are in the habit of speaking of conditions which involve noetic stability or realness, when viewed quite objectively, as beliefs; whereas they are merely conditions which may induce the subjective state called belief. Thus we are wont to say, for instance, that the common man believes in the reality of objects in the outer world, and this because he acts as he would if he entertained such a belief. But in fact nothing is clearer than that the average thoughtless man knows nothing whatever of such a belief; he is, in fact, hardly able to comprehend what the psychologist means when he distinguishes between the subjective and the objective, and is entirely incapable of understanding the significance of the ontological questions with which the metaphysician concerns himself.

Now, in my view, the influences extraneous to us, custom, tradition, etc. (which we sometimes carelessly describe in objective terms as beliefs), are what I have spoken of above as conditions of noetic realness, and do not necessarily involve the subjective experience of belief at all.

I would not be understood to underestimate the importance of these special influences in the establishment of realness, the recognition of which, under certain conditions, involves belief. But I would hold that this realness itself must always be in part due to the influence of the Self, although in certain cases this influence may easily be overlooked. The cases where this realness seems to be forced upon us are quite comparable with the cases of what is called passive or involuntary attention, considered in the preceding article of this series, where attention seems to be forced upon us from without.

As we saw there, the absence of the efficiency of the Self in such cases is altogether illusory, and the same is true in the case before us.

But this realness of a given noetic emphasis may, and in the main does, pass unnoticed, as in the example given above of the common man's notion of objects in the outer world; in fact, were there space it would be easy to show that the greater the degree of realness of a given psychic emphasis, the less does it tend to claim our attention and become an object of reflective thought.

Sec. 7.—Passing then to the question whether we are able to will to believe, it seems clear that the very opponents of this view prove our contention. They are persons for whom, as Professor James puts it, 'only truth as technically verified' is of interest; they listen only when they can gain the satisfaction attached to the appreciation of the fact that their beliefs can be verified by clearly defined ratio-cinative process. And, surely, in this throwing off of all influences of tradition and habit which guide the belief of the common man, they will to disbelieve in the value of these influences as valid data, while willing to believe in their clearly worked-out logical formulæ.

Sec. 8.—As I have said above, the realness of a noetic emphasis is usually overlooked. Only where there occur incompatible emphases, as described in Section 4 above, does the question of the realness of a presentation occupy attention. Here the development, as stable or real, of either of the incompatibles is at once inhibited by the other; and this is the state of doubt. This doubt may be aroused by the merest momentary questioning, and may instantly disappear as the realness of one of the incompatibles overwhelms all opposition; or the doubt may persist for a considerable period and be finally replaced by the stable development of one of the incompatibles. But the recognition of the establishment of this realness, which constitutes the state of belief, never appears except as following the deadlock of a state of doubt in which two incompatibles display an equal measure of realness or unrealness, as we may choose to call it.

The breakdown of this doubt may be due, as we have seen, to a gain in the inner efficiency of one of the two incompatible emphases; perhaps, *e. g.*, some new favorable argument appears to uphold one position as against the other; and in such cases the emphasis becomes so important in itself that no effect of the Self as explicit in the empirical ego of self-consciousness is given.

In the main, belief is a subject of remark only where the deadlock of doubt is continuous for some measurable time. In such cases the period of doubt is prolonged without any gain of inner efficiency by either of the incompatibles; both seem equally forced upon us for the time. Then the doubt remains until it is resolved in a clearly self-

conscious state, when the influence of the empirical ego breaks the deadlock, and I say, 'I believe.'

But evidently, if our general view is correct, even where not explicit, the influence of the Self in belief must always be implicit. In some measure the Self must welcome and reject and have to do with the stability or realness of that which is welcomed. Belief must always involve Will. If I understand him correctly, it is this fact which Professor James expresses when he writes, 'Will and Belief . . . are two names for one and the same psychological phenomenon.'

Most interesting in this connection is the fact disclosed by Professor B. L. Gildersleeve's investigation of Greek syntax in relation to the natural expression by the Greeks of their mental experience in this regard. Professor Gildersleeve puts it thus in a private letter, which he allows me to quote: "The infinitive after verbs of creation, will and endeavor, is the earliest use of the dependent infinitive. Saying and thinking come afterwards by a manner of adaptation. First *Wille* then *Vorstellung*. This is shown with great distinctness in verbs of belief—belief which is originally forth-putting of the will. . . . The negative after verbs of belief is so steadily the negative of the will, that when we find the other negative we feel that the belief has faded out."

Thus it appears that, whenever we experience a distinct belief, we experience the establishment of realness by the efficiency of the Self, as this is explicit in the efficiency of the empirical ego which is a simulacrum of the Self. In other words, whenever we believe we will to believe.

If the views presented in my 'Instinct and Reason' are correct the Self which thus wills is the psychic correspondent of a vastly complex system which throbs as a unit, but which is not differentiated by the emphatic activity of any of its parts. When, therefore, there arises from within the complex system an influence which determines an act of will, this influence is due to the existence of instinctive tendencies of the most fundamental character, which act, without telling us (by attracting our attention) that they are acting. This unobtrusive Self is the resultant of our inheritance from the ages, it tells of the experience of all our human and pre-human ancestors. If it breaks the deadlock of doubt by determining an act of will, it, in that fact, raises objections from racial experience to the notion which is overthrown in the willing to believe. It says to us, "the elements which are present in the field of attentive consciousness represent but a paltry array of experiential effects. I, who am the resultant of the experiences of the ages, judge that the emphasis in the field of attention whose realness I overthrow has a

dangerous outcome. It is, indeed, impossible to place my objections in the field of attention in ratiocinative form; but my experience from the vast æons of time leads me to see that the realness is on my side, that the form of that which appears in the field of attention must be modified if it is to accord with this racial experience."

All this discussion evidently relates to the establishment of realness, and, as such, is a problem of psychology; and it as evidently is quite apart from questions as to the basis of reality, which is a problem of metaphysics. I can not but feel that much obscurity is brought into the discussion of the subject before us by a failure to keep clear in mind this distinction between the realness of psychology and the reality of metaphysics;³ the latter, as a concept, has from a psychological standpoint more or less of realness.

III

Sec. 9.—We may turn now very briefly to the question as to the morality of willing to believe. Evidently under the view taken above, the problem here is merely a special form of the general moral problem, and is to be determined by the same criteria that guide our judgment as to the ethical worth of all acts of willing. There are three cases of interest where will appears clearly as influencing belief; and these we may consider separately.

Sec. 10.—(1) It frequently happens that doubt discloses a deep-seated realness in connection with some conception, and we find ourselves resisting the influences which would disturb this realness. To claim that all such willing to believe is in itself immoral would be manifestly absurd. It is generally held in certain cases to be especially noble to act thus, as, for instance, when a man refuses to believe in aspersions cast upon the character of his trusted friend. In fact, it is a mark of the highly developed man that he does not too lightly change his processes of reaction upon the reception of new or changed stimuli; and the psychic correspondent of the act which enforces this habit of persistence, of avoiding the disturbance of deep-seated 'psychical dispositions,' appears in the willing to believe in this its most usual form.

Sec. 11.—(2) But there are cases where, notwithstanding that some conception has a deep-seated realness, a man chooses to establish in himself (wills to believe in) an incompatible conception. To claim that such action is immoral in itself would be equally absurd.

³ Compare, for instance, Alfred Sidgwick's review of Schiller's 'Humanism,' in *Mind*, N. S., 50, p. 266, where he says, 'But leaving aside the question how far and in what sense man may be said to create or control *reality*,' etc. (italics mine). Whether Schiller or James ever does mean to imply that the Self can control *reality* I very much doubt; but that they are altogether correct in holding that the Self does control realness I am convinced.

For in many cases a man wills to believe thus because he thinks the belief naturally held is incompatible with some nobler belief which on broader grounds seems incontestable. The scientific investigator is constantly thus contending to overthrow the realness of conceptions which are deeply rooted in his nature by tradition; and no one would claim that in so doing his will act is intrinsically immoral.

Sec. 12.—(3) But there are cases where we have in attention two incompatible conceptions, the realness of which is nicely balanced, and where the balance can not be overthrown by any clear ratiocinative process. In such cases we may allow the doubt to stand. Or the influence of the Self may overthrow the doubt—we may will to believe in one of the two incompatibles, and resist belief in the other. If I understand him, it is the morality, in certain cases, of this form of willing to believe that Professor James has defended, and for which defense his critics have so roundly berated him.

It may be agreed, I think, that where the measure of realness of the incompatibles is nicely balanced it is best for a man to reserve judgment, in case it appears clear to him that this reserve of judgment can make no difference to him in relation to his practical life.

But there are cases where to hold the balance leaves the man cold where his heart should be warm, or stolid where enthusiasm is needful if he is to do his part in the struggle toward the higher life. Then surely morality demands the deliberate dissolution of the deadlock by allowing the Self to make a choice between the two incompatibles, thus determining the belief. For surely it is nothing short of rank cowardice to refuse to take sides in the contests of life merely because we can not be sure which side will win. It is worse than that; it is a deliberate and immoral choice of reserve of judgment, when we perceive that such reserve curtails our activities in directions which we feel in the depths of our being to be of the 'nobler' type. To be sure, we may perchance choose the losing side; but even so we shall be no better off in the end if we remain inert, and it is clearly the part of the courageous man to be willing to incur such risk of failure, in the interest of that forcing to their issues of divergent opinions which will the more quickly put their validity to the test of experiment.

HENRY RUTGERS MARSHALL.

NEW YORK CITY.

THE PROCESS OF 'REINTERPRETATION' IN THE HEGELIAN DIALECTIC

IF we examine Hegel's treatment of the categories of quality, we notice two apparently different kinds of movement. There is first a main movement through three categories, being (indeter-

minate), its opposite, determinate being, and their synthesis, being-for-itself. This would seem to exhibit directly the dialectic process by thesis, antithesis and synthesis. But the movement through these three categories is not purely one by simple triadic steps. The second category, determinate being, is not reached by the direct negation of being (indeterminate), but by means of a series of intermediary categories. The question, therefore, at once presents itself whether this second movement through intermediary categories is itself strictly dialectical, that is, an advance by the pure power of the negative. The object of the present paper is to show, first, that while this intermediate movement seems undialectical, it is in reality not so; and second, that it is Hegel's safest mode of logical procedure. In the third place, it will be shown that, notwithstanding this relative safety, the intermediate movement brings to light the process in logical dialectic which is perhaps the main source of error in deductions of the categories.

If we examine the logical advance through the categories of quality, we see that it is as follows: Pure or indeterminate being (the adjective 'indeterminate' is, of course, anticipatory) finds its negation in nothing (*Nichts*); and the synthesis of these is becoming. Thus far the movement would seem to be by thesis, antithesis and synthesis. But now that the category becoming is reached, if this strict triadic process is to continue, we shall expect to find this last category posited as the new thesis, and in the very act of being posited to involve its negation and consequent sublation. That is, the movement should be (1) becoming, (2) opposite of becoming and (3) synthesis of these. But this is not the actual movement. Instead of allowing becoming to call forth its opposite, Hegel turns the category back upon itself and forces it to subject itself to a severe introspection. The category goes within itself and analyzes its contents into their constituent factors, and then, finding that *these inner meanings* are opposites, it pronounces *their* synthetic union.

Let us examine this intermediate movement somewhat more in detail. We may suppose Hegel to have completed the first triad and to have found that being and nothing are moments of becoming. But so soon as we make this statement about the content of the synthetic category we find that it is not quite accurate. Being and nothing *are* being and nothing *only before they are seen to be* moments of becoming. So soon as they are recognized as not independent meanings but as mutually related phases of becoming, they are no longer just being and nothing; they are themselves becomings, and are distinguished only, so to say, by the 'direction' of their becoming. Or, to put it into stricter logical terminology, being and nothing are first held as pure disparates; then it is seen that they

can exist only as mutually referent. When this mutual reference becomes explicit they are recognized as moments of a concrete category which expresses their relativity. But now after their sublation by this concrete category, they are no longer just being and nothing, as they were when they were regarded as pure disparates. Each of them now is invested with *express* relativity, and so neither of them can rightly be given its former name of being or of nothing. The process of sublation, in brief, has not only *put the two together*, but has *changed* them.

Now this change of factors is of supreme importance in the logical dialectic. If we overlook it we lose sight of the significant fact that the synthesis is always more than an aggregating of elements. Hegel is well aware of this factor of change and of the consequent need for a continual *reinterpretation* of the elements that enter each synthesis. Hence being and nothing are now new meanings; in his metaphorical and, unfortunately, misleading terminology, they are both becomings, exhibiting in their movement the distinction between a becoming from nothing to being, that is, an arising, and from being to nothing, that is, a ceasing. Expressed in more strictly logical terms, we ought perhaps to say that each, now, is not simply a moment of a category of relativity, but each is itself expressly a category of relativity, the distinction between them being the difference of reference necessarily present where two factors are related.

When we reach *Daseyn*, which is the synthesis of being and nothing as they are transformed into arising and ceasing, the same process of reinterpretation continues. Arising and ceasing have, to be sure, their synthesis in *Daseyn*, but they are arising and ceasing *only before the synthetic category is known*. So soon as they are seen to be moments of this category of first definiteness, they lose the mere vagueness and unstable flux which they exhibited in becoming—or, in logical terms, their *pure* relativity—and take on the definiteness of their synthesizing category. An arising that is a *definite arising*—a *Daseyn*—is no longer pure arising, but arising with the added notion of definiteness; and this is reality (*Realität*), that is, that which has barest but definite claim to affirmation; and as opposed to *Realität* is negation. But here we have two deepened opposites that must themselves be synthesized, and the result is a deepened category. In this new category, instead of the very slight definiteness of *Daseyn*—just there-being—we have the sharper definiteness of something (*Etwas*). Now reality and negation have been sublated into moments of the category something; but again, they are such only *before* they are seen as *Etwas*. When to the category *Daseyn*, whence they first emerged, is added the

sharper definiteness of *Etwas*, this same definiteness is added to reality and negation. It is now of the character of a limit, and reality and negation become being-for-self and being-for-other, the definite limiting references of every something.

And so we might go on through the list. We have made no attempt here to justify Hegel's advance from category to category, but have tried simply to point out his peculiar mode of treatment. All through the Logic we should see that Hegel's procedure is as we have shown it to be in these first steps—a constant reinterpretation of the sublated categories. These enter each higher category by one door and make their exits by another; but meanwhile they have been touched with a magic wand and come forth transfigured.

The Logic, then, is not the simple and direct process by affirmation, negation and synthesis that one would easily suppose. Between the main steps of the triadic movement are a number of subsidiary movements which are not rightly triadic. For while each of these subsidiary movements exhibits a synthesizing of opposed factors, the opposition upon which the synthesis is based does not, as in the typical dialectical triad, arise out of the pure positing of a thesis, but, rather, out of the restating, in a new light of a previous antithesis. In this sense the whole Logic might be said to be an attempt to solve the first opposition. Thus we would seem to find here a logical movement of synthesis of opposites based upon reinterpretation.

We have to ask, then, whether Hegel really abandons his dialectical method in departing from the direct triadic form of movement. Does he fail to fulfill his promise to allow the advance of the Logic to proceed solely by the power of the negative?

We must first ask what Hegel may legitimately mean by a movement by the power of the negative. Hegel certainly holds, and rightly, that the function of the negative does not lie in the mere calling forth of the opposite of a thesis; nor does it consist in the solving of the opposition by the simple putting together of the two conflicting meanings. Neither of these processes would ever yield a logic. But as we ordinarily regard the word, these would seem to be the only possible ways in which we could have a movement by the power of the 'negative.' Obviously, Hegel means something unusual by the term 'negative,' a meaning that is best expressed in his own way by calling the ordinary negative 'abstract' and his dialectical negative 'concrete.' For Hegel, the negative is not simply excludent. It seems to be so at first blush; and this first blush is the timid second step of the triad—the abstract negative. But as soon as it bravely avows its negativity, it at once involves the *inclusion* of the meaning of the rejected term. Hence the concrete

negative is always richer than the positive. But so soon as this is granted, the negative is seen to be a *synthetic* term. And hence it follows that the concrete or dialectical negative is not the second step of the triadic movement, but the third. Hegel explains the nature of the dialectical negative in his larger *Logic*:¹ "The one thing essential in order to make possible the real logical advance . . . is the knowledge of the logical proposition that the negative is at the same time positive, or that contradiction or self-opposition does not result in nullity or in abstract nothingness, but merely in the negation of its *particular* content—in other words, not in complete negation, but only in the negation of the definite thing. Thus it is a definite or determinate negation. It follows, moreover, that the result of the negation contains that from which it proceeds—which, indeed, is tautologous, for otherwise the result would be no *result*, but a pure immediate. In so far, then, as the result, the negation, is a definite negation, it has *content*. Thus it is a new conception (*Begriff*), a higher, richer one than that which it has negated; for it has become richer just through this negative activity, holding thereby the negated positive and also its opposite in the unity of itself. It is in this manner that the system of conceptions must build itself up and complete itself, proceeding unhaltingly, ever in the medium of pure thought, and ever immanently."

In this sense, then, all movement by the power of the negative is synthetic movement. Let us now examine the character of Hegel's synthesis by negation and ask whether the process of reinterpretation that we have noticed either contradicts this or is introduced gratuitously. In no case may a dialectical synthesis be simply a summation of opposites; it is always a sublation of them into a meaning that is more than their simple aggregation. Thus becoming is not being plus nothing, but being and nothing as necessarily interrelated phases of a unitary meaning. This very factor of interrelated meaning, however, is just what was not present when each was held as independent; hence, so soon as being and nothing are recognized as sublated they are *ipso facto* recognized as changed. Thus, in fact, these sublated categories *must* be reinterpreted if the result is to be accepted as truly synthetic, that is, as truly the third step of the dialectic process.

Two paths are now open to the dialectic. It may proceed throughout by the direct triadic movement of thesis, antithesis and synthesis, in which case its second triad will be developed by taking the synthesis of the first triad as the new thesis, meanwhile implicitly carrying over into this new thesis the changes involved in the process of sublation. So, likewise, the third triad would take for its thesis

¹ *Werke*, iii., p. 38.

the synthesis of the second triad, again holding implicitly the alteration of meanings. Or, on the other hand, the dialectic may develop *only one* direct and unmediated triad, the first, and finding that the third step of this triad has altered the meanings of the initial antithetic factors, it may state this change in a new antithesis, this new antithesis being simply the old one with the translation of meanings effected by the sublation definitely expressed. Then it will of necessity be compelled to reconcile this new opposition, only to find that it has again altered the old meanings, and so will be compelled to restate the opposition in translated form. It may go on with this process of reinterpretation to the very end. The first method would be symbolized:

$$\begin{array}{c}
 a \\
 \left. \begin{array}{l} \text{opposite-of-}a \end{array} \right\} \begin{array}{c} b \\ \left. \begin{array}{l} \text{opposite-of-}b \end{array} \right\} \begin{array}{c} c \\ \left. \begin{array}{l} \text{opposite-of-}c \end{array} \right\} d, \text{ \&c.} \end{array}
 \end{array}$$

while the second would be represented as follows:

$$\begin{array}{c}
 a \\
 \left. \begin{array}{l} \text{opposite-of-}a \end{array} \right\} \begin{array}{c} b \\ \left. \begin{array}{l} \text{opposite-of-}a'b \end{array} \right\} \begin{array}{c} a''b'c \\ \left. \begin{array}{l} \text{opp.-of-}a''b'c \end{array} \right\} \begin{array}{c} \text{opp.-of-}b \\ \left. \begin{array}{l} \text{\&c.} \end{array} \right\} \begin{array}{c} \text{\&c.} \end{array}
 \end{array}
 \end{array}$$

The second is Hegel's typical procedure. The first antithesis is synthesized in *b*; but now, instead of taking at once *opposite-of-b*, the initial antithesis *a* and *opposite-of-a* is allowed to reappear in a reinterpreted form as *opposite-of-a'b* and *a'b*. The factors of the first antithesis have passed through the refracting medium of *b*, and so the new antithesis finds the *b*-meaning involved. The symbol of priming indicates that the change of meaning is not one involving simply the addition of the meaning *b*, but rather a real change of *a* brought to pass by its sublation in another meaning. The new antithesis, however, may not stand, and so passes into a new synthesis; but here again the original opposition breaks out in a still further translated form. This again is synthesized, and so the movement continues. From beginning to end it is seen to be a constant attempt to solve the first antithesis.

In view now of the synthetic meaning involved in the completing step of the dialectic, I think it will be easily admitted that this second method of advance by reinterpretation does not introduce any factor not provided for by the power of the negative. Reinterpretation is definitely called for by the dialectic of the negative just because synthesis *means* reinterpretation. This second method differs, in fact, from the direct triadic method chiefly by its greater

explicitness as to the changes of meaning undergone. For example, if Hegel had taken becoming as his new thesis, he would have made no precise statement of the alterations that had occurred in being and nothing. To be sure, the change would be implicit in the new category, but the very fact that no explicit statement of the new meaning was given would open the possibility that the explicitness might not be rightly apprehended. This possibility would increase as the dialectic proceeded. Each synthesis would be more complex and would call for a wider reinterpretation. And yet, if we simply took the synthesis as the new thesis we should have to trust to seeing all this new meaning at a glance. Obviously we could not trust ourselves far along this line.

Thus, not only is it true that Hegel's procedure by reinterpretation is fully justified as a movement by the sole power of the negative, but it is far less open to error than the movement by direct triads. We have indicated in the symbols how from the first synthesis *b*, the movement of reinterpretation finally, by intermediate stages, brings to light the *opposite-of-b*. This *gradual* educating of the opposite is constantly in evidence in Hegel's *Logic*, and is obviously of more value than the abrupt statement of the opposite of any synthesis so soon as that synthesis is made good. The latter procedure would find us unprepared for the full significance either of the antithesis or the thesis. For this reason we must, I think, pronounce Hegel's method of reinterpretation more valuable than the method by unmediated triads. In the light of it, too, the logic is, *in form*, an unbroken development of meaning from beginning to end.

While, however, we have thus concluded that Hegel has taken the safer path in the deduction of the categories, it is important to note that the process of 'reinterpretation' of each categorical stage is that factor in the *Logic* in which lie its greatest uncertainty and risk of error. A dialectical opposite not only opposes, but changes, initial meanings. As the *Logic* proceeds, the factors to be changed become immensely complex; and from this increasing complexity follows the increasing possibility, at each stage, that the necessary changes have been either not completely or not rightly made. The second possibility involves the graver danger. Its presence is affirmed by the many doubts cast even upon the very first steps of the *Logic*. Hegel's curious movement from becoming to determinate being through ceasing and arising has been opposed just on this ground, that while becoming *has* changed the meanings of being and nothing, it has not changed them in the manner that Hegel supposes. So, likewise, with the passage from determinate being through reality and negation. The accusation so often made-

against Hegel, that he forces the advance from certain categories to others, is really the criticism that he has made erroneous reinterpretations. This is, in fact, what Hegel would call the logical sin of 'external reflection.' A clear recognition of this factor of possible error is an effective antidote for any too ready belief in the infallibility either of Hegel's dialectical procedure or of any attempt to make a systematic deduction of the categories. For every such deduction, if it is to be other than an aggregating of mechanically related factors, that is, if it is to involve *synthetic* relations, must provide, at each stage, for a reinterpretative change. But here is the Achilles heel of all deductions.

H. A. OVERSTREET.

UNIVERSITY OF CALIFORNIA.

DISCUSSION

IDEALISM AND REALISM

I. THE PHYSIOLOGICAL ARGUMENT

DR. MONTAGUE'S acute and interesting paper in this JOURNAL for May 26 entitled 'Two Recent Views of the Problem of Realism' affords me an opportunity, of which I am not sorry to take advantage, to offer some remarks on two aspects of the question, namely, the physiological argument for idealism, and the nature of the distinction we all of us make between the physical object and the mental state by which we perceive it. In the course of his article Dr. Montague states my position and certain of my arguments in a form which I can not accept. He is led to do so, in my opinion, by a certain peculiarity and, as it seems to me, confusion in his own conception of the problem, which I shall try to point out. He agrees with Dr. Alexander¹ in holding that the physiological argument involves a contradiction, being valid only on the presupposition of that reality of the physical world which it sets out to disprove: I hope to show that the physiological argument can be stated in a form in which it will not be open to this criticism. He opposes my 'psychophysical idealism,' as he calls it, to the 'naïve realism' of Dr. Alexander:² I hope to show that these theories are not so opposed as they

¹ See Dr. Alexander's article on 'The Concept of Consciousness' in this JOURNAL for March 3.

² Neither of these phrases seems to me well-chosen. What I in 'Why the Mind has a Body' call 'psychophysical idealism' is a theory, not of the nature of matter, but of the relation of mind and body; the theory, namely, that the brain-process is the phenomenal symbol of the mind. For my theory

at first sight appear; that Dr. Alexander's theory, so far as it is tenable, is only another side of mine; and that it is neither so naïve nor so realistic as Dr. Montague conceives it as being.

Dr. Montague says that I 'limit the scope of immediate or direct perception to the states of the psychophysical organism,' and that I even consider this 'axiomatic.' He says that Dr. Alexander and I agree in assuming that the sensible qualities of which we are immediately conscious must be 'either, exclusively outside or exclusively inside the psychophysical organism.' What are we to understand by 'the psychophysical organism'? The phrase is none of mine; I never inquired whether sensible qualities were outside or inside anything but the mind. Now, I know what the physical organism is, and I know what the mind is, but a compound of the two, formed by putting the mind and the physical organism together, much as one might put together a feeling of amusement and a piece of india-rubber, seems to me a very curious thing to ask whether sensible qualities are inside or outside of. Is not the first essential of clear thinking on this subject to keep the mind and the physical organism carefully separate, and to realize always with regard to which of the two the question of 'inside' and 'outside' is asked?³

The fallacy that must result from not keeping them separate appears in Dr. Montague's arguments for what he calls 'the psychophysical theory of perception.' He says: "If I am real I am somewhere. . . . How can I conceive a thing that is at a distance from me making itself known to me, causing in me a perception of it, without projecting itself through the intervening space in the form of an effect on my organism? If I do not perceive the effect of the fixed stars upon my organism, if I perceive the real stars themselves, I and they must interact at a distance, *i. e.*, must be in two places at once. . . ." Evidently here the pronoun 'I' covers the confusion of the mind with the body. The 'I' that must needs be somewhere in order to be real (if indeed it be the 'I') is the body. This, truly

of the nature of matter 'idealism' simply is a sufficient designation; the fact that I support it in part by the physiological argument does not make it 'psychophysical' in its essential assertion. Why, on the other hand, I think Dr. Alexander's realism not truly 'naïve' will appear in the second portion of this article.

³The better to succeed in this, I have in 'Why the Mind has a Body' substituted for the ambiguous word 'external' the terms 'extra-mental' and 'extra-bodily,' after first carefully explaining that the former is not to be understood in a spatial sense. It still seems to me that these terms are admirably suited to their purpose. Is there anything more scandalous than the ambiguity of that stock phrase, 'the external world'? I ask any reader to say whether, on hearing this phrase, he at once knows whether the externality intended is to the body or to the mind.

enough, can not be in immediate relation with distant objects such as the stars, but can be connected with them only by a long series of causes and effects. The 'I' that perceives the stars, on the other hand, is the mind, and to this no similar disability applies. We do in fact, perceive the stars immediately and directly. To urge the necessary physical intermediaries between the two in proof that we do not is, first, to contradict the plain facts of consciousness, and secondly (as Dr. Montague rightly sees), to make it impossible we should ever directly perceive any extra-bodily object at all. Dr. Montague, of course, tells us that what he immediately perceives is certain events within his body; I congratulate him on this, as it seems to me it should qualify him to be a better physiologist than I, with my merely externally directed vision, can ever hope to become.

Dr. Montague's point about the necessary *time*-disparity between distant objects and the brain-events that accompany our perception of them—that these objects are distant not only in space, but in time—is a very clever and important one, though it does not prove what he takes it to prove, that the objects we immediately perceive are events within the body. The time needed for light-rays to pass from the object to the eye and call forth the organic process to which perception corresponds has this result, that we perceive a slightly earlier state of the object than that which coexists with the perception. Where the object is near at hand, the difference of time is so slight as scarcely to reveal itself in practice, and to have escaped the attention of most theorists. Dr. Montague's device of taking the case of the stars magnifies this slight difference, as it were, with a microscope, till it assumes immense proportions. The starlight I see left the star years and years ago. But do I then really see the star itself at all?

In considering this question, it is important to bear in mind that there is no middle ground between our perceiving the star itself and perceiving merely events within the organism. Admit that we do not perceive the star itself, and by precisely the same process of reasoning you will be forced to admit that we can not directly perceive an object near at hand, such as a tree. Now, I know of but one way of determining what we perceive and what we do not perceive, and that is to consult the facts of consciousness. When I do so, I find that what I perceive is *not* an event within my body, but an object outside it, a tree or a star. For *what I mean* by a tree or a star—the 'impression' to which this 'idea' corresponds, to use Hume's terms—is something of which I am immediately conscious. You can not, therefore, in the endeavor to adjust the facts of experience to one another, be led to the conclusion that objects are *beyond* that of which you are immediately conscious, without having

lost contact in some way with the firm ground of experience from which you set out. I am far from denying that there is an apparent antinomy here, which it is the business of a theory of perception to clear up. The beauty of the panpsychist theory is that it enables us to clear it up quite completely; to show how it is possible that we should perceive extra-bodily objects immediately, and yet that our perceptions should be directly correlated with brain-events.

Grant, of course, that there is such a thing as the 'psychophysical organism'—that the brain is real independently of consciousness, and that consciousness is either enclosed within it or somehow outwardly attached to it—and the conception of Dr. Montague immediately follows. Dr. Montague deserves credit for being perfectly logical here. But I think he commits himself to an unnecessarily crude method of statement when he takes up the defence of the view that consciousness is 'confined within the skull.' Even if it were true that the objects of which we are immediately conscious are events within the body, it would not follow that consciousness is 'confined within' the body. Consciousness is not in space, and it can not, therefore, be either inside or outside the body. Dr. Montague thinks that Dr. Alexander is not successful in refuting the notion that consciousness is 'enclosed within the skull.' In my opinion he is only too successful. His success is so great as to blind him to the fact that there is another relation between consciousness and the brain which he has not refuted, and which has a direct bearing on the problem of perception. For, quite independently of any view as to the mode of existence of matter, *it is an empirical fact* that our perceptions are conditioned on and vary concomitantly with brain-events. *It is only on a realistic theory of the mode of existence of matter*, as I shall go on to show, that this fact involves the consequence that they can not vary directly with, and so be immediately cognizant of, extra-bodily objects. If Dr. Alexander, instead of travestying the fact of correlation, of putting it in a shape in which it could occur to no idealist to hold it, would set himself to prove, either that our perceptions do not vary directly with brain-events, or that this fact does not, on a realistic theory, prevent their varying directly with and so being immediately cognizant of extra-bodily objects, he would have a somewhat more difficult task on his hands than that which he has actually attempted.

It is instructive to note the different attitudes of Dr. Montague and Dr. Alexander, as realists, toward the fact of correlation. Dr. Montague accepts this fact, and is led by it—with perfectly valid logic, as a realist—to the monstrous conclusion that the objects we immediately perceive are events within the body. He fails only to see that he has made this conclusion inevitable by conceiving the

correlation in a realistic sense. Dr. Alexander, to avoid coming to so impossible a conclusion, can see no recourse, as a realist, but resolutely to shut his eyes to the fact of correlation. Hence his opinion that the wise course for metaphysics is to have nothing to do with facts of physiology which, if she considered them, might lead her in a wrong direction; that if she considers them she is condemned to a 'sorry course,' a 'loss of wind,' etc. Dr. Alexander's fundamental difficulty is a rooted inability to conceive the fact of correlation otherwise than in a realistic sense.

But the fact of correlation does not necessarily imply any particular theory as to the mode of existence of matter. I have sometimes tried to state this fact in such a way that it should be clearly seen not to involve any particular metaphysical theory. This may be done by saying that, when the extra-bodily object is an actual perception, the brain-process is a possible perception. Or, better still, it may be done in the following way. Any possible perception may be conceived to have become an actual perception. We may, therefore, conceive the brain-process to be actually perceived. Suppose that I am conscious of a large field, containing many other objects and processes, and among them the brain-process. A peculiar difference would then be noted between the brain-process and all other processes. Arrest any other process, and in place of the perception of the process going on you have the perception of the process arrested. That is, the masses and molecules which before were moving are now perceived at rest. Arrest the brain-process, and in place of the perception of the brain-process going on you do not have the perception of the brain-molecules at rest, but *you cease to have any perception at all*—your consciousness is extinguished.⁴

We have now reached a point where I can explain myself with regard to the validity of the physiological argument with some chance of being understood. Dr. Alexander considers, and Dr. Montague agrees with him, that this argument involves a contradiction. "The amazing thing about this argument," says Dr. Alexander, "is that any one could fail to see that it is based upon the tacit assumption of knowledge of that very extra-conscious world the possible existence of which it is so strenuous to deny." I assume that by 'extra-conscious world' he means a world of *matter* existing independently of the mind; for if he meant a world of things-in-themselves, I should fully admit the point, but it would not justify

⁴This account of the facts is, I think, accurate except in a single point. Your consciousness would be extinguished, not at the precise moment when your brain-process came to a stop, but a moment or two before. Those who have grasped the panpsychist theory of the relation of mind and body will see why this must be so.

him in his contention that the physiological argument involves a contradiction.

In reality, what the physiological argument rests on is the fact of correlation, and not the realistic interpretation of that fact. I can quite understand the difficulty which realists must have in grasping this distinction, or at least in seizing quickly the intent of those to whose reasoning it is vital. It is one of the inadequacies of human speech that you can not speak of a stimulus calling forth a brain-event and of the brain-event being accompanied by a perception without being thought to assert that these physical events have reality apart from the perception, or apart from any perception. Certainly I never meant to base the argument on this realistic assumption, but on the facts themselves in the sense in which every one must admit them to be such.

Let me now restate the physiological argument, and try to make the exact force of it plain. This argument is not so much a direct proof of idealism as a disproof of naïve realism. It disproves naïve realism by showing that this theory is in hopeless contradiction with the facts of physiology. According to naïve realism, the tree I see is a reality external to my mind. But, if this is so, it follows that the brain-event which accompanies my perception of the tree is a reality external to my mind. Now, in order that I may correctly perceive the tree, my perception must vary with the tree, and with the tree alone. But the facts of physiology prove that my perception varies with the brain-event, and with the brain-event alone. Hence, if physical objects are realities without the mind, it is impossible, consistently with the facts of physiology, that we should have direct perception of them. The physiological argument is thus, in its exact force, a *reductio ad absurdum* of naïve realism. Whereas, if we take the tree and the brain-event simply as phenomena, there is no difficulty whatever in that correspondence between the phenomenon we call a tree and the phenomenon we call a brain-event which we actually find to be a fact.⁵

To put the same thing in another way: the physiological argument starts from the fact of correlation, and asks whether it is more reasonable to interpret this fact in a realistic or in an idealistic sense. To interpret it in an idealistic sense is to assume two phenomena, perception-of-tree and perception-of-brain-event (the latter merely

⁵ This, I gladly recognize, is the position towards which Dr. Alexander in his really able article shows himself to be progressing. He would have no difficulty in recognizing such a correspondence to be a fact. But it would put an end to his 'realism'; and, when he came to explain it, I venture to think that he would be led beyond the mere phenomenalism which is enough for his intellectual needs at present.

possible), in a relation of correspondence. To interpret it in a realistic sense is to split the first of these phenomena (since the brain-event is not an actual perception) into two things, the tree on the one side and the perception on the other; and you have then three things to deal with: the tree, the perception of the tree, and the brain-event. You are now in the following dilemma. The perception is shown by the facts of physiology to correspond to and vary with the brain-event. But, if this is so, it is impossible it should at the same time correspond to and vary with the extra-bodily tree, as it is required to do by the theory of naïve realism. How shall we get ourselves out of the difficulty? The true course is not to hold fast to the extra-bodily tree but deny that we have direct acquaintance with it, as Dr. Montague does; for this is to allow your theories to alter facts. It is to recognize that you were wrong in assuming the extra-bodily tree to be without the mind. Instantly the brain-event too ceases to be without the mind, the correspondence between it and the perception becomes a mere correspondence of phenomena, and the difficulty in the correlation of perceptions with brain-events ceases.

To sum up: the argument does not in the least deny that we immediately perceive extra-bodily objects; it only asserts that if those objects are realities without the mind, then the brain-event too is a reality without the mind, and the facts prove that our perceptions vary with the latter and not with the former. Whereas, if extra-bodily objects are merely mental modifications, there is no object, real apart from the perception, to which the latter is bound to correspond, and the correspondence between brain-events and perceptions is simply a correspondence between one mental modification and another. Otherwise put, the perception has not any longer *two* things, the extra-bodily object and the brain-event, to which it is bound *per impossibile* to correspond, but the 'object' is only another name for itself, and the only thing to which it is bound to correspond is the brain-event.

I hope I have now succeeded in vindicating the physiological argument from the charge of involving a contradiction, and in showing that it is a valid refutation of the naïve type of realistic theory. This, however, is not the last word of the matter. Dr. Alexander is not wrong in thinking that the physiological argument implies the extra-mental reality of something which is the cause of our sensations, though he is wrong in thinking that it implies the extra-mental reality of matter. When, in obedience to this argument, we have recognized that matter has no existence apart from our sensations, we have merely *formulated* the facts of perception, but we have not *explained* them. The argument leaves us with a phenom-

enal tree somehow conditioned upon and varying with a phenomenal brain-event. The lazy phenomenalism which is so popular at present is content merely to register this surprising fact. In reality it is a datum for metaphysics, an *explicandum*, and the test of the soundness of any metaphysical theory is its ability to explain it. The impotence of realism shows itself nowhere more clearly than in its total inability to do this. And no wonder; for, make the body a reality external to the mind, and their conjunction is bound to be an ultimate and inexplicable fact. Idealism, on the other hand, paves the way for the panpsychist explanation. To state that explanation in a word: the phenomenal relation between the extra-bodily tree *quâ* physical and the brain-event is the symbol (in mine or any consciousness) of a real relation between the thing-in-itself that appears as the tree and the tree *quâ* perception. If thinkers who at present stand helpless before the relation of mind and body, and are driven by the facts either to the denial that we ever perceive extra-bodily objects at all, or to a position which amounts to the denial that mind and body are related—if these thinkers would devote a little more attention to the panpsychist theory, I am convinced that they would find nine-tenths of their difficulties disappearing.*

I shall take up the question of the nature of the distinction between the physical object and our perception of it in a later installment of this article.

C. A. STRONG.

COLUMBIA UNIVERSITY.

REVIEWS AND ABSTRACTS OF LITERATURE

Les Principes des Mathématiques: I. Principes de la Logique. L. COUTURAT. *Revue de Métaphysique et de Morale*, January and March, 1904. *Kant et la Mathématique moderne.* L. COUTURAT. *Bulletin de la Société française de Philosophie*, May, 1904. *Les Principes des Mathématiques d'après M. Russell.* G. MILHAUD. *Revue Philosophique*, March, 1904. *L'Objectivité intrinsèque des Mathématiques.* P. BOUTROUX. *Revue de Métaphysique et de Morale*, September, 1903.

The papers of M. Couturat summarize the main results of modern logic, defining the concepts and axioms on which exact or mathematical reasoning is based. The general position is that of Mr. Russell's 'Principles of Mathematics,' though the exposition is much clearer than that of Mr. Russell's. This criticism does not go into details, but considers

*A good way to begin is to read Professor Royce's essay on 'Self-Consciousness, Social Consciousness, and Nature,' in the *Philosophical Review* for September and November, 1895, reprinted in his 'Studies of Good and Evil'; and Professor Stout's chapter on 'Body and Mind,' in his 'Manual of Psychology.'

only one or two of M. Couturat's positions, in connection with those of MM. Boutroux and Milhaud. M. Couturat, like Mr. Russell, considers logic and mathematics to be fused, if not identified. This fusion occurred in the second half of the nineteenth century, when logicians expressed the syllogism in symbolic form, thus showing that logic is part of mathematics, and when mathematicians, defining their own concepts and axioms, discovered that mathematics is only one kind of exact reasoning among other possible kinds, *i. e.*, is a part of logic. This fusion seems to be one of the most hopeful signs of the times, suggesting as it does that 'quantitative' reasoning has no monopoly of exactness or logical necessity, but that any subject, concept or principle is amenable to exact definition and reasoning, and that there is perhaps no region, even that of the infinite, which is not perfectly intelligible. The perfecting of logical method also restores to conceptual analysis the importance and fruitfulness of which Hegel's barren dialectic method succeeded in depriving it. Against the symbolism of recent logic, however, one frequently hears urged the objection that it does not give any results which the old methods could not reach. But neither does the use of number symbols give any results that we could not get by detailed counting. Symbolism is safer, as well as quicker, just because it is more abstract, as M. Couturat points out. Symbolism is simply a well-constructed highway to the goal of truth, which goal we commonly try to reach by crossing the fields; it has no pitfalls, while the journey across the fields may lead us through many sloughs of confusion, whose mire will cling to us even when we arrive at the goal. When we have learned the '*characteristica universalis*' surely we shall reason more safely than now about continua, dimensions, possibilities, and all those swamps across which the high road has not yet been laid. On the other hand, we must object to M. Couturat's description of logic as a 'hypothetically necessary' system. He shares with Mr. Russell, and indeed most logicians, the view that the forms of logic are not observed and copied from the actual world, but are simply ideal constructions. Now against this view we refer to the second and third of the papers above named. M. Boutroux clearly shows, it seems to us, that the mathematical world, though an ideal one, is not a construction of ours but quite objective. And M. Milhaud shows that we should never combine the concepts and the axioms of logic as we do if it were not for the stimulus of intuition. If, now, intuition is objective does it not seem that logic is in part at least a study of the nature of the presented world? M. Couturat, in the fourth paper above named, where he argues against Kant's basing of mathematics upon intuition, does not take account, I think, of this objection. But we can not here enter upon this large metaphysical question. We can and must assert, however, that it is not right for logicians to make the above metaphysical presupposition and then go on with a clear conscience. Another presupposition which needs proof is that the propositional calculus is the fundamental part of logic. Until we have an exact and universally admitted analysis of the relations that make up the proposition—the noun-verb relation, the verb-object relation, etc.—how can we decide whether it is more funda-

mental than the relation of individual to its class? Again, we are told that the number *one* is defined, quite without a vicious circle, as that class composed of mutually identical members. But does not the concept of individual member presuppose the idea of unity? In short, the study of logic must be carried much further than it has been carried. We should analyze all the concepts and relations used in thinking. It is only natural that attention should have been centered at first upon the best polished concepts, those of mathematical reasoning. The science of logic, like that of psychology, is in its infancy. Meanwhile the great merit of writers like the above, besides their unquestioned learning and logical power, is that they have taught us the universal applicability of logic and its fundamental philosophical importance.

W. H. SHELDON.

COLUMBIA UNIVERSITY.

Some Observations on Visual Imagery. H. B. ALEXANDER. *Psychological Review*, July-September, 1904, pp. 319-337, Vol. XI., No. 4-5.

Dr. Alexander divides visual imagery into three grades with regard to vividness, and into two classes according to the relation of the images to volition. He says that his images are externalized, sometimes, indeed, so vividly objectified as to overlie and blot out real sensation, and to make difficult, if not impossible, the drawing of a hard and fast line between sensation and image. His images of most things are isolated and, except in his third class, are smaller than reality, though things really small, such as printed letters, are not reduced. The differences in the three classes are slight for outline, greater for definiteness, more still for substantiality, and greatest for color, luminosity and apparent size. Vividness is proportional to the amount of attention given to the image. Like many other observers, he says that his images, as a rule, are fragmentary. According to the belief of the present writer this is, however, no differentia; for images, as sensations themselves, are just as fragmentary when they are as brief.

Dr. Alexander speaks of (1) 'voluntary or memory images,' and (2) 'spontaneous and irrelevant images.' In a section on 'The Influencing of Imagery' he admits, however, that 'even in the most abjectly servile imagery there is always some spontaneity' (p. 333). In a section on 'Imagery and Ratiocination' he says he believes that visual imagery was probably the mode of thought developed in the course of evolution before the origin of language, and suggests that the visual images are 'mere residual mental organisms pursuing a natural course of degeneration' (p. 336).

Dr. Alexander begins by saying that 'theories as to imagery can not be on sure ground until we have fuller detail' (p. 319), and yet I have been able to count in the 18 pages of his article only 17 experiences that have been described in detail. One could have wished that he had given more of his experiences. As his visual images are of a vivid type, he might, I believe, have told us more about them. A collection of descriptions of his images of other sense qualities, if he has such, would be welcome.

In connection with this article I should like to make a recommendation concerning the use of the term 'memory image.' Dr. Alexander speaks of 'voluntary or memory images.' By memory images he means not only 'simple reproductions,' but 'all images consciously constructed from remembered elements.' He observes (p. 324) that 'many times projected images appear sequent to winking.' It seems to me that to the visual images here mentioned, and to these alone, should be restricted the name 'memory images,' and that a distinction should be made between 'memory images' and 'images' of the 'free' or 'fancy' kind. I have made for my own study the following classification of images: First, *after images*, which 'feel coercive' and behave in a peculiar way; they show negative and complementary phases; second, *memory images*, which also feel coercive but show no phases; they are, however, like after images in being traced or usually traceable to a definite stimulus; and third, the *images*, fainter than either of the others (in my own case, though apparently not always so with Dr. Alexander), and neither feeling 'coercive' nor having phases. These memory images are mentioned by James (I., 647) as called phenomena of *Sinnesgedächtniss* by the Germans. Examples of these are the microscopist's haunting visions of his preparations, the chess-board mentioned by Dr. Alexander (p. 325) and a many times-observed experience of my own in seeing, after a swim in the surf, images of breaking waves, as I was rubbing my face with a towel in the diminished light of the bath-house.¹

It is true in a sense that all images are memory images. They are resuscitations, either partial or (possibly) integral, of sensations that we ourselves have had; unless we believe that they are inherited from our ancestors through the germ-plasm, a thought which has been several times suggested, but which is corroborated by no facts known to me. Now, if all images are memory images, let us call by that name only those in which the memory element is so noticeable and strong as to make them a class by themselves.

WILFRID LAY.

AMAGANSETT, N. Y.

JOURNALS AND NEW BOOKS

THE INTERNATIONAL JOURNAL OF ETHICS. July, 1904. Vol. XIV., No. 4. *Moral Instruction in Schools* (pp. 401-418): HERBERT M. THOMPSON. - The author argues that it is possible to give school instruction in morals which shall be free from religious or supernatural dogmas, and consequently acceptable to the various schools of religious belief. Sympathy and truthfulness are, he believes, the virtues most important to teach. *Has the Universe an Intelligent Background and Purpose?* (pp. 419-435): JAMES H. HYSLOP. - Whether or not the world has an intelligent purpose and background depends on whether nature cares as much for consciousness as for matter and energy. Unless consciousness can be shown to be conserved (as matter and energy are conserved)

¹ I have also observed a number of instances of auditory memory images.

by the continued existence of individuals, the evidence for a materialistic view is strong. *The Government Prison Settlement at Waiotapu, New Zealand* (pp. 436-444): CONSTANCE A. BARNICOAT. - An interesting account of a prison settlement, in which prisoners, who are not habitual criminals, lead a healthy, outdoor life of productive labor. *The Moral Training of the Young in China* (pp. 445-468): CHESTER HOLCOMB. - A sympathetic discussion of Chinese education and government, showing the predominantly ethical aim of the educational system and the decentralization of the government. *The Practical Reason in Aristotle* (pp. 469-480): F. MELIAN STAWELL. - The author attempts to reconcile the metaphysical and Platonic elements in Aristotle's ethics with Aristotle's distinctively practical and humanistic conception of man's duty. *Student Honor: A Study in Cheating* (pp. 481-488): EARL BARNES. - A study of the answers of students to a questionnaire, sent to determine student sentiment concerning cheating, shows that the majority of students would be unwilling personally to report cases of dishonesty, although they admit that to do so would be right. *An Examination of the Rationalistic Attitude* (pp. 488-495): GUSTAV SPILLER. - The rationalist is wrong in so far as he feels that a critical attitude and the pursuit of truth sum up the aim of life; but it remains true that 'the diversity of men's wants makes it imperative that reason shall be called in . . . to decide upon diverging claims.' *The Heart of Mr. Spencer's Ethics* (pp. 496-499): FRANKLIN H. GIDDINGS. - Mr. Spencer regarded the attainment of individual liberty and the destruction of the military spirit as the ends of greatest value to society. *Book Reviews*: Henry Sidgwick, *The Development of European Polity*: GEORGE CLAUS RANKIN. G. L. Duprat, *A Treatise on the Psycho-Sociological Bases of Ethics*: S. H. MELLONE. Inazo Nitobé, *Bushido, the Soul of Japan*: NATHANIEL SCHMIDT. L. Lévy-Bruhl, *The Philosophy of Auguste Comte*: HENRY BARKER. F. H. Hayward and M. E. Thomas, *The Critics of Herbartianism and Other Matters Contributory to the Study of the Herbartian Question*: J. WELTON CARROLL. Alexander Darroch, *Herbart and the Herbartian Theory of Education*: J. WELTON. Carroll D. Wright, *Some Ethical Phases of the Labor Question*: STEPHEN F. WESTON. John Mitchell, *Organized Labor*: JOHN GRAHAM BROOKS. F. C. S. Schiller, *Humanism*: A. R. AINSWORTH. Horatio W. Dresser, *The Christ Ideal: A Study of the Spiritual Teachings of Jesus*: NATHANIEL SCHMIDT.

REVUE DE METAPHYSIQUE ET DE MORALE. July, 1904. Vol. X., No. 5. *L'histoire littéraire et la sociologie* (pp. 621-642): G. LANSON. - While sociology must heed historic literature, the latter does not need the former. The law of the correlation of literature and life is that the literature rather supplements than expresses the life of an age. The laws of 'foreign influence,' 'crystallization of peoples,' 'correlation of the esthetic forms and purposes,' 'of the appearance of a masterpiece' and 'of the action of a book on the public.' *Économie optimiste et économie scientifique* (pp. 643-663): C. RIST. - If we wish to realize the maximum of happiness it is necessary to organize competition in favor of

liberty and publicity. Free competition is not always realizable. *Les principes des mathématiques* (pp. 664-698): L. COUTURAT. - The definition of an irrational number, of a continuum; the concept of quantity; the measure of quantities. *La philosophie scientifique de M. Duhem* (pp. 699-744): A. REY. - M. Duhem rejects Poincaré's position; physical theories are not mere matters of convenience. But the physical laws he arrives at are never stated as derived from real quantities, but as resting on pure mathematics. He stands opposed especially to the old realistic mechanical theories. He gives an Aristotelian emphasis to qualitative differences. *La question de l'École Polytechnique* (pp. 745-754): L. WEBBER. - Reform rather than destruction advocated. *Livres nouveaux*. T. Ruyssen, *Essai sur l'évolution psychologique du jugement*. F. Paulhan, *La fonction de la mémoire et le souvenir affectif*. Braunschvig, *Le sentiment du beau et le sentiment poétique*. J. Sully, *Essai sur le rire*. M. Pelletier, *Les lois morbides de l'association des idées*. Gley, *Étude de psychologie physiologique et pathologique*. J. van Biervliet, *Étude de psychologie*. F. le Dantec, *Les lois naturelles*. C. Pouglé, *La démocratie devant la science*. M. Georges, *Pour la pédagogie*. G. de Pawlowski, *Philosophie du travail*. C. Rappoport, *La philosophie de l'histoire comme science de l'évolution*. C. Waddington, *La philosophie ancienne et la critique historique*. J. Bourdeau, *Les maîtres de la pensée contemporaine*. H. Cornelius, *Einleitung in die Philosophie*. H. Rickert, *Der Gegenstand der Erkenntnis*. *Einleitung in die Transzendentalphilosophie*. G. Störing, *Moralphilosophische Streitfragen*. H. C. Bastian, *Studies in Heterogenesis*. Reviews and Periodicals.

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NOTES AND NEWS

WE are enabled to announce the following list of official secretaries for the several sections of the departments of philosophy and psychology of the International Congress of Arts and Science to be held at St. Louis, September 19-25: *Metaphysics*: Professor A. O. Lovejoy, of Washington University; *Philosophy of Religion*: Dr. W. P. Montague, of Columbia University; *Logic*: Dr. W. H. Sheldon, of Columbia University; *Methodology of Science*: Dr. Ralph Barton Perry, of Harvard University; *Ethics*: Professor Frank C. Sharp, of the University of Wisconsin; *Esthetics*: Professor Max Meyer, of the University of Missouri; *General Psychology*: Wm. Harper Davis, of Lehigh University; *Experimental Psychology*: Dr. R. S. Woodworth, of Columbia University; *Comparative Psychology*: Dr. Robert M. Yerkes, of Harvard University; *Abnormal Psychology*: Dr. Adolf Meyer, of the New York State Pathological Institute.

ON Friday, October 28, Columbia University will commence the celebration of the hundred and fiftieth anniversary of its foundation. On that day all the university buildings will be open for inspection. The following Monday morning the corner stones will be laid of four new buildings: the university chapel, two university dormitories, and the School of Mines building. If completed, the new Thompson physical education building of Teachers College will then be dedicated. On Monday afternoon President Butler will address the formal university convocation. Details of other lectures, etc., in which the foreign guests of the university will take part, are to be announced later.

PROFESSOR JOHN E. BOODIN, of Iowa College, has been elected to the new chair of philosophy at the University of Kansas. Dr. J. D. Stoops (Boston University) will succeed him at Iowa College.

DR. EDMUND J. JAMES, president of Northwestern University, has been elected president of the University of Illinois, succeeding Dr. A. S. Draper, now superintendent of State Instruction in the State of New York.

THE Rev. Dr. Charles W. Shields, professor of harmony of science and revealed religion at Princeton University since 1865, died on August 25, at the age of seventy-nine years.

THE death is also announced of Christof von Sigwart, professor of philosophy at Tübingen.

THE JOURNAL OF PHILOSOPHY

PSYCHOLOGY AND SCIENTIFIC METHODS

A WORLD OF PURE EXPERIENCE. I.

IT is difficult not to notice a curious unrest in the philosophic atmosphere of the time, a loosening of old landmarks, a softening of oppositions, a mutual borrowing from one another on the part of systems anciently closed, and an interest in new suggestions, however vague, as if the one thing sure were the inadequacy of the extant school-solutions. The dissatisfaction with these seems due for the most part to a feeling that they are too abstract and academic. Life is confused and superabundant, and what the younger generation appears to crave is more of the temperament of life in its philosophy, even though it were at some cost of logical vigor and of formal purity. Transcendental idealism is inclining to let the world wag incomprehensibly, in spite of its Absolute Subject and his unity of purpose. Berkeleyan idealism is abandoning the principle of parsimony and dabbling in panpsychic speculations. Empiricism flirts with teleology; and, strangest of all, natural realism, so long decently buried, raises its head above the turf, and finds glad hands outstretched from the most unlikely quarters to help it to its feet again. We are all biased by our personal feelings, I know, and I am personally discontented with extant solutions, so I seem to read the signs of a great unsettlement, as if the upheaval of more real conceptions and more fruitful methods were imminent, as if a true landscape might result, less clipped, straight edged and artificial.

If philosophy be really on the eve of any considerable rearrangement, the time should be propitious for any one who has suggestions of his own to bring forward. For many years past my mind has been growing into a certain type of *Weltanschauung*. Rightly or wrongly, I have got to the point where I can hardly see things in any other pattern. I propose, therefore, to describe the pattern as clearly as I can consistently with great brevity, and to throw my description into the bubbling vat of publicity where, jostled by rivals and torn by critics, it will eventually either disappear from notice, or else, if better luck befall it, quietly subside to the profundities, and serve as a possible ferment of new growths or a nucleus of new crystallization.

I. RADICAL EMPIRICISM

I give the name of 'radical empiricism' to my *Weltanschauung*. Empiricism is known as the opposite of rationalism. Rationalism tends to emphasize universals and to make wholes prior to parts in the order of logic as well as in that of being. Empiricism, on the contrary, lays the explanatory stress upon the part, the element, the individual, and treats the whole as a collection and the universal as an abstraction. My description of things, accordingly, starts with the parts and makes of the whole a being of the second order. It is essentially a mosaic philosophy, a philosophy of plural facts, like that of Hume and his descendants, who refer these facts neither to Substances in which they inhere nor to an Absolute Mind that creates them as its objects. But it differs from the Humian type of empiricism in one particular which makes me add the epithet radical.

To be radical, an empiricism must neither admit into its constructions any element that is not directly experienced, nor exclude from them any element that is directly experienced. For such a philosophy, *the relations that connect experiences must themselves be experienced relations, and any kind of relation experienced must be accounted as 'real' as anything else in the system.* Elements may indeed be redistributed, the original placing of things getting corrected, but a real place must be found for every kind of thing experienced, whether term or relation, in the final philosophic arrangement.

Now, ordinary empiricism, in spite of the fact that conjunctive and disjunctive relations present themselves as being fully coordinate parts of experience, has always shown a tendency to do away with the connections of things, and to insist most on the disjunctions. Berkeley's nominalism, Hume's statement that whatever things we distinguish are as 'loose and separate' as if they had 'no manner of connection,' James Mill's denial that similars have anything 'really' in common, the resolution of the causal tie into habitual sequence, John Mill's account of both physical things and selves as composed of discontinuous possibilities, and the general pulverization of all Experience by association and the mind-dust theory, are examples of what I mean.

The natural result of such a world-picture has been the efforts of naturalism to correct its incoherencies by the addition of trans-experiential agents of unification, substances, intellectual categories and powers, or Selves; whereas, if empiricism had only been radical and taken every thing that comes without disfavor, conjunction as well as separation, each at its face value, the results would have called for no such artificial correction. *Radical empiricism*, as I understand it, *does full justice to conjunctive relations*, without, however, treating them as rationalism always tends to treat them, as

being true in some supernal way, as if the unity of things and their variety belonged to different orders of truth and vitality altogether.

II. CONJUNCTIVE RELATIONS

Relations are of different degrees of intimacy. Merely to be 'with' one another in a universe of discourse is the most external relation that terms can have, and seems to involve nothing whatever as to farther consequences. Simultaneity and time-interval come next, and then space-adjacency and distance. After them, similarity and difference, carrying the possibility of many inferences. Then relations of activity, tying terms into series involving change, tendency, resistance, and the causal order generally. Finally, the relation experienced between terms that form states of mind, and are immediately conscious of continuing each other. The organization of the Self as a system of memories, purposes, strivings, fulfilments or disappointments, is incidental to this most intimate of all relations, the terms of which seem in many cases actually to penetrate and suffuse each other's being.

Philosophy has always turned on grammatical particles. With, near, next, like, from, towards, against, because, for, through, my—these words designate types of conjunctive relation arranged in a roughly ascending order of intimacy and inclusiveness. *A priori*, we can imagine a universe of withness but no nextness; or one of nextness but no likeness, or of likeness with no activity, or of activity with no purpose, or of purpose with no ego. These would be universes, each with its own grade of unity. The universe of human experience is, by one or another of its parts, of each and all these grades. Whether or not it possibly enjoys some still more absolute grade of union does not appear upon the surface.

Taken as it does appear, our universe is to a large extent chaotic. No one single type of connection runs through all the experiences that compose it. If we take space-relations, they fail to connect minds into any regular system. Causes and purposes obtain only among special series of facts. The self relation seems extremely limited and does not link two different selves together. *Prima facie*, if you should liken the universe of absolute idealism to an aquarium, a crystal globe in which goldfish are swimming, you would have to compare the empiricist universe to something more like one of those dried human heads with which the Dyaks of Borneo deck their lodges. The skull forms a solid nucleus; but innumerable feathers, leaves, strings, beads, and loose appendices of every description float and dangle from it, and save that they terminate in it, seem to have nothing to do with one another. Even so my experiences and yours float and dangle, terminating, it is true, in a nucleus of common

perception, but for the most part out of sight and irrelevant and unimaginable to one another. This imperfect intimacy, this bare relation of *withness* between some parts of the sum total of experience and other parts, is the fact that ordinary empiricism over-emphasizes against rationalism, the latter always tending to ignore it unduly. Radical empiricism, on the contrary, is fair to both the unity and the disconnection. It finds no reason for treating either as illusory. It allots to each its definite sphere of description, and agrees that there appear to be actual forces at work which tend, as time goes on, to make the unity greater.

The conjunctive relation that has given most trouble to philosophy is the *co-conscious transition*, so to call it, by which one experience passes into another when both belong to the same self. About the facts there is no question. My experiences and your experiences are 'with' each other in various external ways, but mine pass into mine, and yours pass into yours in a way in which yours and mine never pass into one another. Within each of our personal histories, subject, object, interest and purpose are *continuous or may be continuous*.¹ Personal histories are processes of change in time, and *the change itself is one of the things immediately experienced*. 'Change' in this case means continuous as opposed to discontinuous transition. But continuous transition is one sort of a conjunctive relation; and to be a radical empiricist means to hold fast to this conjunctive relation of all others, for this is the strategic point, the position through which, if a hole be made, all the corruptions of dialectics and all the metaphysical fictions pour into our philosophy. The holding fast to this relation means taking it at its face value, neither less nor more; and to take it at its face value means first of all to take it just as we feel it, and not to confuse ourselves with abstract talk *about* it, involving words that drive us to invent secondary conceptions in order to neutralize their suggestions and to make our actual experience again seem rationally possible.

What I do feel simply when a later moment of my experience succeeds an earlier one is that though they are two moments, the transition from the one to the other is *continuous*. Continuity here is a definite sort of experience; just as definite as is the *discontinuity-experience* which I find it impossible to avoid when I seek to make the transition from an experience of my own to one of yours. In this latter case I have to get on and off again, to pass from a thing lived to another thing only conceived, and the break is positively experienced and noted. Though the functions exerted by my

¹The psychology books have of late described the facts here with approximate adequacy. I may refer to the chapters on 'The Stream of Thought' and on the Self in my own 'Principles of Psychology,' as well as to S. H. Hodgson's 'Metaphysics of Experience,' Vol. I., Chap. VII. and VIII.

experience and by yours may be the same (*e. g.*, the same objects known and the same purposes followed), yet the sameness has in this case to be ascertained expressly (and often with difficulty and uncertainty) after the break has been felt; whereas in passing from one of my own moments to another the sameness of object and interest is unbroken, and both the earlier and the later experience are of things directly lived.

There is no other *nature*, no other whatness than this absence of break and this sense of continuity in that most intimate of all conjunctive relations, the passing of one experience into another when they belong to the same self. And this whatness is real empirical 'content' just as the whatness of separation and discontinuity is real content in the contrasted case. Practically to experience one's personal continuum in this living way is to know the originals of the ideas of continuity and of sameness, to know what the words stand for concretely, to own all that they can ever mean. But all experiences have their conditions; and over-subtle intellects, thinking about the facts here, and asking how they are possible, have ended by substituting a lot of static objects of conception for the direct perceptual experiences. "Sameness," they have said, "must be a stark numerical identity; it can't run on from next to next. Continuity can't mean mere absence of gap; for if you say two things are in immediate contact, *at* the contact how can they be two? If, on the other hand, you put a relation of transition between them, that itself is a third thing, and needs to be related or hitched to its terms. An infinite series is involved," and so on. The result is that from difficulty to difficulty, the plain conjunctive experience has been discredited by both schools, the empiricists leaving things permanently disjoined, and the rationalist remedying the looseness by their Absolutes or Substances, or whatever other fictitious agencies of union they may have employed. From all which artificiality we can be saved by a couple of simple reflections: first, that conjunctions and separations are, at all events, coordinate phenomena which, if we take experiences at their face value, must be accounted equally real; and second, that if we insist on treating things as really separate when they are given as continuously joined, invoking, when union is required, transcendental principles to overcome the separateness we have assumed, then we ought to stand ready to perform the converse act. We ought to invoke higher principles of *disunion* also, to make our merely experienced *disjunctions* more truly real. Failing thus, we ought to let the originally given continuities stand on their own bottom. We have no right to be lopsided or to blow capriciously hot and cold.

III. THE COGNITIVE RELATION

The first great pitfall from which such a radical standing by experience will save us is an artificial conception of the *relations between knower and known*. Throughout the history of philosophy the subject and its object have been treated as absolutely discontinuous entities; and thereupon the presence of the latter to the former, or the 'apprehension' by the former of the latter, has assumed a paradoxical character which all sorts of theories had to be invented to overcome. Representative theories simply shoved the subject-object gap a step farther, getting it now between the object and the representation. Common-sense theories left the gap untouched, declaring our mind able to clear it by a self-transcending leap. Transcendentalist theories left it impassible in the finite realm, and brought an Absolute in to perform the bridging act. All the while, in the very bosom of the finite experience, every conjunction required to make the relation intelligible is given in full. Either the knower and the known are:

(1) the self-same piece of experience taken twice over in different contexts; or they are

(2) two pieces of *actual* experience belonging to the same subject, with definite tracts of conjunctive transitional experience between them; or

(3) the known is a *possible* experience either of that subject or another, to which the said conjunctive transitions *would* lead, if sufficiently prolonged.

To discuss all the types, the ways in which one experience may function as the knower of another, would be incompatible with the limits of this essay.² I have just treated of type 1, the kind of knowledge called perception, in an article in this JOURNAL for September 1, 1904. This is the type of case in which the mind enjoys direct 'acquaintance' with a present object. In the other types the mind has 'knowledge-about' an object not immediately there. Of type 2, the simplest sort of conceptual knowledge, I have given some account in two articles, published respectively in *Mind*, Vol. X., p. 27, 1885, and in the *Psychological Review*, Vol. II., p. 105, 1895.³ Type 3 can always formally and hypothetically be reduced

² For brevity's sake I altogether omit mention of the type constituted by knowledge of the truth of general propositions. This type has been thoroughly and, so far as I can see, satisfactorily, elucidated in Dewey's 'Studies in Logical Theory' (Chicago, 1904). Such propositions are reducible to the *S-is-P* form; and the 'terminus' that verifies and fulfills is the *S=P* as they feel in combination. Of course percepts may be involved in the mediating experiences, or in the 'satisfactoriness' of the *P* in its new position.

³ These articles and their doctrine, unnoticed apparently by any one else, have lately gained favorable comment from Professor Strong in this JOURNAL, for May 12, 1904. Dr. Dickinson S. Miller has independently thought out the same results, which Strong according dubs the James-Miller theory of cognition.

to type 2, so that a brief description of that type will put the present reader sufficiently at my point of view, and make him see what the actual experience-value and meaning of the mysterious cognitive relation may be.

Suppose me to be sitting here in my library at Cambridge, at ten minutes' walk from 'Memorial Hall,' and to be thinking truly of the latter object. My mind may have before it only the name, or it may have a clear image, or it may have a very dim image of the hall, but such intrinsic differences in the image make no difference in its cognitive function. Certain extrinsic phenomena, special experiences of conjunction, are what impart to the image, be it what it may, its knowing office.

For instance, if you ask me what hall I mean by my image, and I can tell you nothing, or if I fail to point or lead you towards the Harvard Delta, or if, being led by you, I am uncertain whether the Hall I see be what I had in mind or not, you would rightly deny that I had 'meant' that particular hall at all, even though my mental image might to some degree have resembled it. The resemblance would count in that case as coincidental merely, for all sorts of things of a kind resemble one another in this world without being held for that reason to take cognizance of one another.

On the other hand, if I can lead you to the hall, and tell you of its history and present uses; if in its presence I now feel my idea, however bad it may have been, to be *continued*; if the associates of the image and of the felt hall run parallel, so that each term of the one context corresponds serially, as I walk, with an answering term of the others; why then my soul was prophetic, and my idea must be, and by common consent would be, called cognizant of reality. That percept was what *meant*, for into it my idea has passed by conjunctive experiences of sameness and fulfilled intention. Nowhere is there jar, but every later moment matches and corroborates an earlier.

In this matching and corroborating, taken in no transcendental sense, but denoting definitely felt transitions, lies all that the knowing of a percept by an idea can possibly contain or signify. Wherever such transitions are felt, the first experience *knows* the last one. Where they do not, or where even as possibles, they can not intervene, there can be no pretense of knowing. In this latter case the extremes will be connected, if connected at all, by inferior relations—bare likeness or succession, or by 'witness' alone. Knowledge thus lives inside the tissue of experience. It is *made*; and made by relations that unroll themselves in time. Whenever certain intermediaries are given, such that, as they develop towards their terminus, there is experience from point to point of one direction

followed, and finally of one process fulfilled, the result is that their starting point thereby becomes a knower and their terminus an object meant or known. That is all that knowing (in the simple case considered) can be known-as, that is the whole of its nature, put into experiential terms. Whenever such is the sequence of our experiences we may freely say that we had the terminal object 'in mind' from the outset, even although *at* the outset nothing was there in us but a flat piece of substantive experience like any other, with no self-transcendence about it, and no mystery save the mystery of coming into existence and of being followed by other pieces of substantive experience, with conjunctively transitional experiences between. That is what we *mean* here by being 'in mind.' Of any deeper more real way of being in mind we have no positive conception, and we have no right to discredit our actual experience by talking of such a thing at all.

I know that many a reader will rebel at this. "Mere intermediaries," he will say, "even though they be feelings of continuously growing fulfilment, only *separate* the knower from the known, whereas what we have in knowledge is a kind of immediate touch of the one by the other, an 'apprehension' in the etymological sense of the word, a leaping of the chasm as by lightning, an act by which union is smitten into living being, over the head of the distinctness of its terms. All these dead intermediaries of yours are out of each other, and outside of their termini still."

But do not such dialectic difficulties remind us of the dog dropping his bone and snapping at its image in the water? If we knew any more real kind of union *aliunde*, we might be entitled to brand all our empirical unions as a sham. But unions by continuous transition are the only ones we know of, whether in this matter of a knowledge-about that terminates in an acquaintance, whether in personal identity, in logical predication through the copula 'is,' or elsewhere. If anywhere there were more absolute unions realized, they could only reveal themselves to us by just such conjunctive results. These are what the unions are *worth*, these are all that *we can ever practically mean* by union, by continuity. Is it not time to repeat what Lotze said of substances, that to *act like one* is to *be one*? Should we not say here that to be experienced as continuous is to be really continuous, in a world where experience and reality come to the same thing? In a picture gallery a painted hook will serve to hang a painted chain by, a painted cable will hold a painted ship. In a world where both the terms and their distinctions are affairs of experience, the conjunctions which we experience must be at least as real as anything else. They will be 'absolutely' real conjunctions, if we have no transphenomenal Abso-

lute ready, to derealize the whole experienced world by, at a stroke. If, on the other hand, we had such an Absolute, not one of our opponents' theories of knowledge could remain standing any better than ours could; for the distinctions as well as the conjunctions of experience would impartially fall its prey. The whole question of how 'one' thing can know 'another' would cease to be a real one at all in a world where otherness itself was an illusion.⁴

So much for the essentials of the cognitive relation, where the knowledge is conceptual in type, or forms knowledge 'about' an object. It consists in intermediary experiences (possible, if not actual) of continuously developing progress, and, finally, of fulfilment, when the sensible percept, which is the object, is reached. The object here not only *verifies* the idea, proves its function of knowing that object to be true, but the object's existence as the terminus of the chain of intermediaries *creates* the function. Whatever terminates that chain was, because it now is, what the idea 'had in mind.'

The towering importance of this kind of knowing for human life lies in the fact that an experience that knows another can figure as its *representative*, not in any quasi-miraculous 'epistemological' sense, but in the definite practical sense of being its *substitute* in various operations, yet leading to the same result. By experimenting on our conceptual experiences, or ideas of reality, we may save ourselves the trouble of experimenting on the real experience which they severally mean. The ideas form related systems, corresponding point for point to the systems which the realities form; and by letting an ideal term call up its associates systematically, we may be led to a terminus which the corresponding real term would have led to in case we had operated on the real world. This brings us to the general question of substitution, and some remarks on that subject seem to be the next thing in order.

IV. SUSTITUTION

In Taine's brilliant book on 'Intelligence,' substitution was for the first time named as a cardinal logical function, though of course the facts had always been familiar enough. What now, exactly, in an absolute system of experiences, does the 'substitution' of one of them for another mean?

According to radical empiricism, experience as a whole wears the form of a process in time, whereby innumerable particular

⁴Mr. Bradley, not professing to know his absolute *aliunde*, nevertheless derealizes Experience by alleging it to be everywhere infected with self-contradiction. His arguments seem almost purely verbal, but this is no place for arguing that point out.

terms lapse and are superseded by others that follow upon them by transitions which, whether disjunctive or conjunctive in content, are themselves experiences, and must in general be accounted at least as real as the terms which they relate. What the nature of the event called 'superseding' signifies, depends altogether on the kind of transition that obtains. Some experiences simply abolish their predecessors without continuing them in any way. Others follow them more livingly, are felt to increase or to enlarge their meaning, to carry out their purpose, or to bring us nearer to their goal. They 'represent' them, and may fulfil their function better than they fulfilled it themselves. But to 'fulfil a function' in a world of pure experience can be conceived and defined in only one possible way. In such a world transitions and arrivals (or terminations) are the only events that happen, though they happen by so many sorts of path. The only function that one experience can perform is to lead into another experience; and the only fulfilment we can speak of is the reaching of a certain kind of end. When one experience leads to (or can lead to) the same end as another, they agree in function. But the whole system of experiences as they are immediately given presents itself as a quasi-chaos through which one can pass out of an initial term in many directions and yet end in the same terminus, moving from next to next by a great many alternative paths.

Either one of these paths might be a functional substitute for another, and to follow one rather than another might on occasion be an advantageous thing to do. As a matter of fact, and in a general way, the paths that run through conceptual experiences, that is, through 'thoughts' or 'ideas' that 'know' the things in which they terminate, are highly advantageous paths to follow. Not only do they yield inconceivably rapid transitions; but, owing to the 'universal' Character⁵ which they frequently possess, and to their capacity for association with one another in great systems, they outstrip the tardy consecutions of the things themselves, and sweep us on towards our ultimate termini in a far more labor-saving way than the following of trains of sensible perception ever could. Wonderful are the new cuts and the short-circuits which the thought-paths make. Most thought-paths, it is true, are substitutes for nothing actual; they end outside of the real world altogether, in wayward fancies, utopias, fictions or mistakes. But where they do reenter reality and terminate therein, we substitute them always; and with these substitutes we pass the greater number of our hours.

⁵ Of which all that need be said in this essay is that it also can be conceived as functional, and defined in terms of transitions, or of the possibility of such.

This is why I called our experiences, taken all together, a quasi-chaos. There is vastly more discontinuity in the sum total of experiences than we commonly suppose. The nucleus of every man's experience, the sense of his own body, is, it is true, an absolutely continuous perception; and equally continuous is his perception (though it may be very inattentive) of a material environment of that body, changing by gradual transition when the body moves. But the rest of the physical world is at all times absent from each of us, a conceptual object merely, into the perceptual realities of which our life inserts itself at points discrete and relatively rare. Round the nucleus, partly continuous and partly discrete, of what we call the physical world of actual perception, innumerable hosts of thinkers, pursuing their several lines of physically true cogitation trace paths that intersect one another only at discontinuous perceptual points, and the rest of the time are quite incongruent; and around the whole of the nucleus of relative 'reality,' as around the Dyak's head of my late metaphor, there floats the vast *nimbus* of experiences that are wholly subjective, that are non-substitutional, that find not even an eventual ending for themselves in the perceptual world—the mere day-dreams and joys and sufferings and wishes of the individual minds. These exist *with* one another, indeed, and with the objective nucleus, but out of them it is probable that to all eternity no inter-related system of any kind will ever be made.

This notion of the purely substitutional or conceptual physical world brings us to the most critical of all the steps in the development of a philosophy of pure experience. The paradox of self-transcendency in knowledge comes back upon us here, but I think that our notions of pure experience and of substitution, and our radically empirical view of conjunctive transitions, are *Denkmittel* that will carry us safely through the pass.

WILLIAM JAMES.

HARVARD UNIVERSITY.

DISCUSSION

IDEALISM AND REALISM

II. THE DISTINCTION OF OBJECT AND PERCEPTION

IN the preceding part of this article I replied to Dr. Montague's criticisms in so far as they relate to the validity of the physiological argument, and endeavored to show that in deference to this argument we must hold that, while physical objects are external to

the body, they are not external to the mind. I come now to Dr. Montague's account of my reasons for, as he calls it, 'rejecting the reality of sensible qualities.' And, first of all, I must protest against this way of stating my position. I do not 'reject the reality of sensible qualities,' but only their reality without the mind. Nor do I, as he says, hold to 'the correspondingly transcendent and mysterious character of the real things.' I hold, with Berkeley and Kant, that the objects we immediately perceive are the real things. But I hold, also with Berkeley and Kant, that these real things exist only as phenomena, as states of mind, and that these states of mind stand symbolically for realities beyond the mind. I should not wish to take Dr. Montague to task for a mere looseness of expression, but I think his conception of physical reality reveals itself here: things can not be real unless they are beyond the mind. What would Berkeley have said to the accusation that he denied the reality of sensible qualities? Has Dr. Montague forgotten Kant's distinction between the 'empirical reality' of matter and its 'transcendental ideality'? In truth, it is not I who deny the reality of perceived objects, but Dr. Montague, who tells us that, when we think we perceive a tree, what we really perceive is an event within our organism.

But to come to Dr. Montague's account of my reasons. He finds them to be three: (1) that the primary qualities can not be conceived without the secondary qualities, and that the secondary qualities are 'intrinsically subjective'; (2) that it would be multiplying worlds *praeter necessitatem* to believe that sensible qualities exist both within and without the mind; (3) that we can not imagine ourselves completely away from objects without their vanishing in our grasp. In reality, these are not my reasons for the view in question, but more or less suggestive remarks which I make by the way. My reasons are the physiological and what I call the metaphysical argument. Nevertheless, Dr. Montague's discussion of these remarks gives him an opportunity to make some taking points, and I am not sorry to be called upon to defend them.

As regards the first, Dr. Montague has slightly misunderstood me. My contention was not that the secondary qualities are 'intrinsically subjective in their nature,' but that they are *admittedly* subjective. That is, most persons admit that light, sound, heat and cold, etc., have no existence outside of the organism, but come into being only when the extra-bodily ether vibrations, sound-waves, etc., give rise to sensation. I can not agree with Dr. Montague that the reason why the secondary qualities have been considered subjective is because of their 'uselessness for purposes of prediction' or their 'regular and marked association with feelings of pleasure and pain.' It is solely because the stimuli that produce them have to be construed in terms

of the primary qualities. That is, it is not redness in the stimulus that enables it to call forth the sensation of red, but a certain wavelength of light; it is not objective sweetness in the sugar that enables it to call forth the sensation of sweet, but a certain chemical action. The hypothesis of an objective redness and sweetness is, therefore, otiose. It is more profitable to inquire in what sense the secondary qualities have been proved to be subjective. I can not go into the question here, but I think it would be found that the distinction of primary and secondary qualities is merely a branch of the physiological argument, and that the sense would at least include that of intra-mental.

I come next to the remark that it would be needlessly duplicating worlds to hold that sensible qualities exist both within and without the mind. Dr. Montague has missed the point of the remark. As he states it, the point would seem to be that there is something incredible, or contrary to the known economy of nature, in the production of resembling things, and therefore in the hypothesis that sensible qualities exist both within and without the mind. This is by no means my opinion. I agree with Dr. Montague that nature is prolific, and that there are a vast number of similar things in the world. My point was, rather, that when you set out to determine whether the physical world is an extra-mental or an intra-mental fact, and when you find, or think you find, that the only parts of it which can ever be immediately given to you are intra-mental facts, it becomes an unnecessary doubling of those parts to assume that they also exist as extra-mental facts. What you wished to know was whether the parts immediately given were extra-mental or intra-mental; you have found them to be intra-mental, and that settles the matter. Of course, if you confuse intra-mental with intra-bodily, and hold that the only objects we ever immediately perceive are intra-bodily facts, the desire to piece out this fragmentary physical world by assuming extra-bodily objects not wholly unlike those we immediately perceive must be very strong indeed.

I come, finally, to the third remark upon which Dr. Montague comments, and this to me is the most important and interesting part of his article, for his observations are neatly put and incisive, and they express a difficulty with the idealistic theory which seems to be very widely felt. They furnish me a welcome opportunity to say a few words on the current tendency to reject Berkeleyanism in favor of a more or less naïve realism.

The remark was, that we can not completely imagine ourselves away from objects without their vanishing in our grasp. On this Dr. Montague comments as follows: "It is true that whenever I think of, anything, there exists along with the thing thought of my

present act of thinking about it, but this either has no significance at all, for the reason that I can perceive my act of thinking to be extrinsically and, therefore, unessentially associated with its object and something to which I can pay more or less attention without the object changing at all, or else it means that I here and now can think of nothing at all as having reality or meaning of any kind that is not a part of my own consciousness at this present moment. Not only the physical world, but Socrates, my great-grandparents, my own past and future existence, are all nothing but aspects of my present psychosis. No one, and certainly no believer in things-in-themselves, could accept the extreme solipsism which this argument would mean, if it meant anything." Dr. Alexander's article contains a very similar passage: "We are none of us solipsists; we believe that we know things and beings existing apart from ourselves; we believe that our knowledge means more than it is, that it stands for something beyond its immediate content. And if this is true, if there exists something which is not in our knowledge, something which is different from our knowledge of it, then that something is not dependent upon our consciousness for its existence."

On these passages I observe that, as bearing on the question before us, they are vitiated by the fact that they fail to distinguish between perception and representative thought. They treat perception as if it were admittedly a case of representative thought. Now, the characteristic of representative thought is that it deals with an absent object. This being so, it is obvious that I can, not directly perceive, but reflectively recognize my act of thinking to be distinct from and 'unessentially associated with' the object with which it has to do; and to assert that the object of memory exists only as the remembering state, the object of expectation only as the subjective expecting, the thing conceived only as the conception, would of course be absurd. Dr. Montague has chosen his examples—Socrates, my past and future existence, etc.—with the express object of having them merely represented by thought, and not actually present. He chooses his great-grandparents rather than his grandparents because he has presumably seen the latter, and this would interfere with their being made effectually other than the thought. But now, the peculiarity of physical objects is that they are *not* merely thought of *in absentia*, but *actually present to consciousness*—as present as a toothache or a desire. That I can perceive a physical object so far as thus actually present to be other than my consciousness of it, by no means follows from the fact that I recognize objects of memory and conception to be other. Nor is the idealist who explains such presence by the fact that physical objects exist, like toothaches and desires, as states of consciousness in any way

committed thereby to a solipsistic theory in the case of objects of thought.

To this it may be replied that the difference, while obvious enough, must be explained in some other way, since we do, in point of fact, distinguish between physical objects and the consciousness of them. But what right have we to assume that this is a distinction of two separate things, rather than a distinction of two different ways of regarding one thing?¹ We are told, of course, that we must separate the quality red from the sensation of red that is aware of it, the perception of a tri-dimensional book from the book itself. This, I regret to say, is something I have never been able to do. I quite appreciate that the *conception* of a quality is a different thing from the *conception* of a sensation, but it has always seemed to me that what we conceive in these two ways is the same identical *fact*. *I can not detect, over and above the quality red, any sensation or consciousness or subject that contemplates or has it; but it seems to me that the luminous existence of that red is the full account of the fact.* Nor can I detect any perception (though I can detect a certain amount of thought) over and above the given book. The givenness appears to me to be an inseparable character of the book, without which it could not exist at all. When I say, then, that the very same fact or experience can be thought of in two ways, either as an episode in my personal history, or as a constituent of a vast continuous physical world the other parts of which I only conceive, it seems to me that I am giving an account of the distinction which is idealistic, no doubt, but which differs from the realistic account in being accurately true to the facts.

Until quite recently I should have thought the foregoing a sufficient reply to the argument that we distinguish between physical objects and our consciousness of them. But I am coming to see that it does not concede to the realist all he has a right to demand, or at least that it does not adequately meet the difficulty in the idealistic position which he feels. A doctrine widely held, indeed the prevailing doctrine at present, makes of physical objects essentially objects of thought. Now, it can not be denied both that thought enters into our perception of objects—that perception, in other words, is a kind of conception—and that it is a general principle that objects of thought are distinct from the mental state which constitutes the thought of them. ‘Knowledge,’ says Dr. Alexander, ‘means more

¹ Dr. Alexander cites, apparently with approval, Professor Mach’s view that ‘the data of physics and psychology are the same,’ the only difference being ‘in the kind of phenomenal interrelation studied.’ This seems to me to be the correct view, but if Dr. Alexander accepts it he can hardly be the ‘naïve realist’ that Dr. Montague imagines him.

than it is, it stands for something beyond its immediate content'; and perception is a form of knowledge.

Let us for the moment admit this intellectualistic position, and let us inquire what exactly it establishes. For I think it would be hasty to assume that it establishes the independent existence of a material world. Knowledge may 'stand for something beyond its immediate content' in two ways: (1) when I think of a centaur or an absurdity, these objects of thought are, as Stout shows,² distinct from the thought of them; (2) when I think of another person's mind or of my past, the object of thought is not only distinct from the thought of it, but it exists or existed separately from the thought. In other words, thought has in the one case to do with an ideal object, in the other case with an object. Now, even granting that matter as an object of thought is distinct from the thought of it, how does this prove that it exists as an object, and not merely as an ideal object? How can we be sure that the physical world is anything more than a conceptual schema or framework that enables us to calculate the vicissitudes of our sensations? How can we be sure that the 'empirical reality' of matter is inconsistent with its 'transcendental ideality'?

It will be replied, I suppose, that matter is evidently not an object of thought in that ideal sense; it is an object of thought *that we see*. Perception involves sensation, and the object of sensation is distinct from the sensation itself. Let us grant this for a moment, and let us consider what exactly it is that has been proved. It has been proved that the object exists independently of the sensation at the time when the sensation exists, but it has not been proved that it exists at any other time. In other words, you have proved the independence of matter but you have not proved its continuous existence. But its continuous existence, it will be said, follows from its independence; if matter exists independently of sensation, then the cessation of the sensation does not carry with it the cessation of the matter. This seems to me a very hasty inference. Suppose the world were so constructed that physical objects and our perceptions of them always came into existence and passed out of existence together: would our experience be any different from what it is? Then you can not infer from our experience as it is that objects exist when we do not perceive them. How, indeed, could experience possibly inform us that objects exist when not experienced? Yet I presume experience is our source of knowledge about objects.

It will be replied that such a view destroys the reality of our knowledge of objects. So, no doubt, it does—the reality of our knowledge of *their continuous existence*. But the question is pre-

²'Analytic Psychology,' Vol. I., p. 45.

cisely whether we have any such knowledge. In my opinion the only knowledge we have is such as we could legitimately have obtained from experience, namely, the knowledge of *their continuous perceptibility*. This knowledge, with all that it includes (and it includes the entire body of science), remains whole and unimpaired, and physical knowledge so far as justified is, therefore, as truly knowledge as ever. It is by a confusion of thought that the realist imagines that when he has proved the independence of matter he has proved a continuously existing physical world like that in which the plain man believes.

But he has not even proved the independence of matter, for it is impossible to admit the assumption on which his reasoning is based: that sensation has an object distinct from itself. It is a principle, unquestionably, that *thought* always has an object distinct from itself, but there is no corresponding principle applying to sensation. To separate between the sensation of red and the quality red in such a way as to have two distinct existences is an impossible feat. On the other hand, we have admitted that perception involves thought and that matter as an object of thought is distinct from the thought of it. The realist is therefore so far in the right. But it remains to be determined *in what shape* matter exists independently of the thought of it. Realists jump to the conclusion that it exists as matter-stuff, that their realism is naïve. This in no way necessarily follows from the admission of its independent existence, but the mode of existence still remains to be determined.

But the mode of existence, the realist will urge, is fully determined by the content or deliverance of the knowledge as such: it exists as matter and as independent of thought, and there is an end of the question. These indications would be final or rather sufficient, if there were not two distinct ways in which they might be fulfilled: by its existing as matter-stuff, and by its existing as sensation. Realists assume that there is a contradiction between objects being material and independent of thought, and their being composed of sensation; and they assume this because they confuse independence of thought with independence of the mind. Now, if it were possible for us to know that objects exist whether perceived or not, we might know them to be independent of the mind, and they could not then be composed of sensation. As it is, we only know them to be independent of thought, and this is perfectly consistent with their being composed of it.

The conclusion to which I am coming will now be apparent. We have seen that *thought has an object distinct from itself, but it does not present its object to us as real and present; that sensation presents to us an object that is real and present, but that object is not distinct from the sensation*. This being so, it seems to me that the

very simple solution of the difficulty between idealists and realists lies in holding that *matter exists independently of the thought of it, but exists in the shape of sensation*—in the shape, that is, of my sensation who experience the matter.

According to this view, matter exists for us in two distinct ways: as a sensational experience, and as an object of thought. These two ways are exactly analogous to the two relations in which we stand to our thoughts and feelings: (1) we may *have* (that is, *be*) a thought or feeling, and (2) we may *think about it*. When I think about one of my feelings, say a toothache, the object thought of exists independently of my thought of it, yet it exists as another (slightly earlier) state of my consciousness. In just the same way, the object of which I think when I think of matter (and this, whether my thought be a discursive one, or one of those fused thoughts that enter into the tissue of a perception) exists independently of the thought of it in the shape of another state (or portion of a state) of my consciousness, namely, sensation. When I think of matter I think of certain of my sensations. I think of them, of course, in a certain peculiar way, otherwise I should not think of them as matter; that is, I think of them in their relations to other similar sensations in my own and other consciousnesses.

Most authorities, following Kant (or at least a line of thought in Kant), recognize matter only as an object of thought; the sensations themselves they do not consider to be matter, but at most the raw material out of which matter is formed. I believe this intellectualistic view to be erroneous, and hold that the sensations alone are matter, and are the object which the thought of matter is about. The sensations are matter by standing to each other in certain relations, such as extensity, recurrence, etc. Now, my thinking of them in these relations does not constitute or establish the relations; the relations are there, in or between the sensations, whether I think of them or not. Matter is, therefore, not constituted by the thought (or perception, *i. e.*, conception) of it, but by the sensations which the thought is about.

The current low estimate of Berkeleianism seems to me to be due to the failure to keep these two relations of the mind to matter separate. Matter as composed of sensation is identical with the experience, consciousness, or (in that sense) 'perception' of it; this is the relation of the mind to matter of which Berkeley was thinking, and he is perfectly right with regard to it; there is no subject or consciousness distinct from the sensational experience and that is aware of it, but the sensational experience is itself an integral part of the mind or subject. Hence the delightful paradox of Kant (I do not know how this is to be reconciled with his intellectualism) that we

are aware of matter by means of self-consciousness.⁴ To say, on the other hand, that matter as an object of thought (or of that conception which enters into perception) is identical with the thought or consciousness of it in that sense, is evidently absurd. But Berkeley never meant to say this; the consciousness to which he referred was not the intellectual consciousness by which we conceive matter, but the sensational consciousness by which it exists. The absurdity of Berkeleianism is therefore all from the point of view of a false intellectualistic theory.

To sum up: the proposition *esse = percipi* is ambiguous, in that the *percipi* may mean either *cogitari* or *sentiri*. Berkeley meant the word in the sense of *sentiri*, and thus interpreted the proposition is perfectly correct. Intellectualists take it in the sense of *cogitari*, and this makes the proposition absurd. They are perfectly right that no object of intellectual consciousness can ever be identical with the consciousness of it. But they must go farther. If the object is to have real existence, if it is not to be a purely ideal object, some way of existing must be found for it *in rerum naturâ* other than that which it has as merely an object of thought. Thus the very fact that the *esse* of matter can not be *percipi* in the intellectual sense makes it possible that it may be *percipi* in the sense of sensation. Finally, if we take account of the physiological argument set forth in the first part of this article, I think we see that it not only may but must be *percipi* in this sense.

Throughout this discussion of the relation of object and perception, I have abstracted from the fact—as I hold it to be—that our perceptions are symbolic of things-in-themselves to which they enable us to adjust our relations. I have abstracted from this fact because it was impossible to consider it without unduly complicating the discussion. Nevertheless, I think it probable that certain peculiarities in our way of regarding our perceptions are to be explained by the fact that they stand symbolically for things-in-themselves. Thus, the permanence or continuous existence which we have so strong a tendency to attribute to them arises, in my opinion, through a transference to the symbol of qualities which in truth belong only to the thing-in-itself. And if it is true, as I suppose it is, that we regard not only matter *quâ* object of thought but also matter *quâ* sensation as somehow other than ourselves, I think the explanation would be found to be that we have a habit of acting towards the latter as if it were the thing-in-itself for which it stands. But I will not enlarge further upon an aspect of the problem which I have discussed quite fully in Ch. XII. of 'Why the Mind has a Body.'

C. A. STRONG.

COLUMBIA UNIVERSITY.

⁴ 'Kritik der reinen Vernunft,' ed. Hartenstein, p. 599.

REVIEWS AND ABSTRACTS OF LITERATURE

Die von M. von Rohr gegebene Theorie des Veranten, eines Apparats zur richtigen Betrachtung von Photographien. E. WANDERSLEB. *Verhandlungen d. D. Physikalischen Gesellschaft*, 1904, VI. Jahrg., Nr. 1, S. 44-60.

The Verant, a New Instrument for Viewing Photographs from the Correct Standpoint. DR. M. VON ROHR. *The Photographic Journal*, Nov., 1903, Vol. XLIII., pp. 279-290.

Der Verant, ein Apparat zum Betrachten von Photogrammen in richtigen Abstände. DR. A. KÖHLER. *Photographische Korrespondenz*, 1904, S. 9-20.

A good photograph is an exact n -fold reduction of an object as seen from the position of the photographic lense. It follows then that in front of the lense there is a position in which the photograph could be put so that each point of the photograph would exactly intercept the direct ray of light from the corresponding point of the object. And if the human eye is now put in the place of the photographic lense, it is clear that the rays from the photograph will meet the eye at exactly the same angles as would rays from the real object: while if the eye were either nearer to or farther from the photograph these angles would no longer be the same. There is, then, one correct distance and position from which the eye should view any photograph (and a photograph should be looked at with but one eye). But with our ordinary photographs this distance is from 10-16 cm., whereas only a very short-sighted eye can focus for an object so near. The normal eye has to view the photograph from a greater distance (about 26 cm. at least) than the correct one, and this introduces a perspective distortion which tends to exaggerate the depth of the picture or else, if the observer knows the actual depth, tends to make the background look too small and the foreground too large (but one eye still being used).

Now this distortion could be obviated by enlarging the photograph, as was proposed by G. S. Cundell in 1844. But enlarging is altogether too expensive and troublesome a process. Therefore, at the instance of Professor A. Gullstrand the firm of Carl Zeiss (Jena) has prepared the Verant lense (*verus*, true) for the monocular inspection of ordinary photographs, such that if picture, lense and eye are properly placed, the eye sees an enlarged virtual image of the photograph, whose rays meet the eye at the same angles as they would if proceeding from the actual object. The effect is said to be highly natural. In the case of distant objects this is, if accommodation is a factor in space sensation, helped out by the fact that the accommodation is now for infinity.

This principle has been successfully applied to the stereoscope and to the telestereoscope: and a binocular Verant is soon to be put on the market. In this instrument stereoscopic pictures are used and the miniature effect which is sometimes troublesome in the ordinary stereoscope, is obviated. Identical pictures may be put into it if they show

no foreground (that is, no objects nearer than the limits of purely binocular relief-perception), since otherwise the very principle of stereoscopy shows the picture flat. Corresponding to this refinement in viewing the stereoscopic pictures, these must now be taken with lenses whose distance apart is fairly close to the distance between the observer's eyes.

This instrument, which marks a great advance in the technique of reproductive art, is psychologically as well as physically interesting. A picture seen through the monocular Verant appears not only of natural size but also of natural depth. There is here no binocular stereoscopy, and Dr. von Rohr, who invented these lenses, ascribes this effect of depth to Helmholtz's representative factors (*Vorstellungsmomente*). This phenomenon shows how barbarous is the ordinary practice of viewing paintings and photographs with two eyes. The Verant will afford means of studying the perception of near objects with distant accommodation, whereas in previous stereoscopes the conditions have been the reverse. It remains, finally, to find out whether the fact that for distant objects in this stereoscope the two eyes are directed parallel, does not contribute as much to the viridical effect as does the enlargement of the picture, on which the inventor chiefly relies. For the apparent size of an object (as well as its apparent distance) depends on the convergence of the eyes, and in previous stereoscopes it has never been possible to adjust the pictures for parallel convergence, because of the therewith coordinated relaxation of the focus. It may be feared, however, that this last admirable feature may actually prevent the popular use of the Verant stereoscope, for it has been found that the untrained observer who looks into an ordinary stereoscope insists on converging sharply as if it were a newspaper, and generally needs some little practice before he is able to relax his convergence to even the slight degree required. This fact has for some time prevented the American firm of Underwood and Underwood from introducing stereoscopes with strongly magnifying prisms and more nearly parallel convergence.

The above three papers have nearly the same content; but that of Wandersleb has the fullest and clearest exposition.

EDWIN B. HOLT.

HARVARD UNIVERSITY.

L'évolution comme principe philosophique du devenir. W. M. KOZŁOWSKI.
Revue Philosophique, February, 1904, pp. 113-135.

The conception of evolution as a scientific theory is apparently of no value when applied to the universal syntheses with which philosophy deals. In the infinite reach of thought, the orderly changes which science perceives become fortuitous concourses of atoms. The author aims here to determine the philosophical significance of evolution in terms of a method which is based on the contradictions between the intuitional and discursive aspects of the theory.

For the first contradiction it may be said, on the one hand, that all observation of natural processes reveals an asymptotic principle of change. In general, neither an experience of the self nor a given state of the uni-

verse is ever exactly repeated. Thermo-dynamics furnishes the type-illustration of this in the phenomena of entropy, *i. e.*, the energy of a dynamic system is always escaping and becoming non-available, as far as this particular system is concerned. A clock runs down and the solar system approaches equilibrium. This equilibrium or *fin du monde* will prevent the repetition of any previous state. It is not possible, according to the second law of this science, to isolate perfectly a system, and, thereby, put its energy through a perfect cycle. On the other hand, if we pass from the sphere of direct observation to the realm of abstract thought and mentally grasp the universe as a totality, we find that the asymptotic principle of change has become a principle of periodicity. If the conception of the universe be all-inclusive, the energy of such a universe must be perfectly conserved, as there would be no external quantity with which it could interact. The first law of thermo-dynamics, which states the conservation of energy, conforms to this rational demand and furnishes a periodic principle of change.

In the problem of determinism appears the second contradiction treated between observation and thought. The asymptotic evolution of experience gives determinism. If we have components, we can determine resultants. If we know present conditions, we can prewise the future, etc. Entropy seems to operate here also; we never get the whole body of conditions, and, hence, our prevision is imperfect. Passing again to the totality of the universe as grasped by thought, we find that this determinism becomes indeterminism. If the causal series is a circle, it amounts to no causation at all; while if we isolate the active principle from the causal series, we deny our assumption of totality.

Can thought isolate the universe? Do we experience a true conception of such isolation? What are the implications of the endeavor to grasp the conception of totality? Is there not entropy in thought processes as well as in dynamic processes? How can a quantity be isolated if it be not isolated from some other quantity either within or without it? Such questions indicate philosophy's future work. Its share in the solution of the contradictions between observation and thought is the investigation of the so-called demands of consciousness for unity, etc. As for science, it is yet sponsor for the second law in thermo-dynamics and the principle of entropy. Can it justify thought by producing a cycle?

These contradictions between intuition and discursive thought appear complete. Any present reconciliation must be one of method. Both science and philosophy should accept a 'critical methodological dualism' composed of these two factors. Let each endeavor to acquit the other. All departments of knowledge must work in harmony to resolve the dualism, if this be possible, and to indicate the better ways of regarding it, if it be inevitable.

This article indicates a tendency which even now outcrops, to call in question the fundamental conceptions of logic and mathematics. Science evidently expects philosophy to appropriate the asymptotic evolution of experience. This can be done only by a criticism of the demand of consciousness for unity. If, as Professor Seth has pointed out, experience

of unity is unknown, and the unitary self can not be isolated from experience, what is this but entropy in the field of knowledge?

PHILIP HYATT TARR.

COLUMBIA UNIVERSITY.

Skepticism of the Instrument. H. G. WELLS. *Mind*, July, 1904, pp. 379-393.

This paper was read before the Oxford Philosophical Society, November 8, 1903. It presents the philosophical foundations of one who would, if he did not feel this a 'quite preposterous modesty,' call himself a mere amateur in philosophy. According to his own account, the youthful training of Mr. Wells was entirely scientific and objective, and he came to reflect deliberately upon philosophical problems through the studies of educational method and theory, of logic and psychology that he made in preparing to take a teaching diploma. His studies of comparative anatomy and of evolution led him to regard all human powers as imperfect 'compromises and adaptations,' and this view still dominates him when he comes to the study of logic, causing him to mistrust seriously the efficacy of its methods as a means of attaining a correct view of objective facts. He is skeptical of the instrument on three counts. First, it proceeds by classification, and he doubts the objective reality of all classification. Things, in point of fact, are unique. Thought, working by classes, is continually in error. When its objects are near at hand, it can correct its errors by the check of practical results, but in philosophical or theological matters there can be no such check, hence it is like 'firing at an inaccessible, unmarkable and indestructible target with a defective rifle and variable cartridges.' A second count against logic is that it constantly thinks the negative as though it were something positive and real and full of meaning, whereas it is just that vague unknown which thought can not fathom. In consequence the mind is not justified in dealing with it as though it had positive content and value. Lastly, our ideas are on different levels, and when we attempt to deal with the same object by methods of thinking that are not on the same level, contradiction arises. It would be absurd to speak of cutting an atom in two with a knife. The atom is an object of conception, the knife of ordinary sensuous experience. The two ways of thinking are not to be fitted together thus. Now human logic is continually liable to just such absurdities, as witness the conflict between the theories of freedom and predestination.

Mr. Wells does not hesitate to extend his skepticism to morals and religion. There is no universal validity for human thought. One result of great value springs, Mr. Wells thinks, from this view. It is that the good and the sacred become more a matter of individual taste and judgment, 'ethical, social and religious teaching' is brought 'into the province of poetry,' and our sense of humor can rejoice in profound contradictions instead of being confined to petty issues. One may well feel that such an attitude, however diverting to a temporary mood, is hardly destined to be accepted by human intelligence as permanently satisfactory.

The scientific agnosticism of Mr. Wells is current, but he supplements it by some criticisms of logic that are used in a fresh and suggestive way. His acceptance of 'objective facts' without criticism of their constitution and meaning is naïve. On the whole, his view seems largely negative; so much so that he seems scarcely justified in regarding it as pragmatism, although it is big with possibilities in that direction.

E. N. HENDERSON.

ADELPHI COLLEGE.

Nietzsches Lehre in ihren Grundbegriffen. Die ewige Wiederkunft des Gleichen und der Sinn des Übermenschen, Eine kritische Untersuchung. OSCAR EWALD. Berlin, Ernst Hofmann & Co., 1903. 141 pp.

There are two classes of books concerning the doctrines of any given thinker: those that do and those that do not presuppose on the part of the reader a knowledge of the subject in question. The present monograph belongs to the first class; it can hardly fail to be of value to anyone already familiar with Nietzsche's writings, it is practically useless as an introduction to them. There is much criticism but little exposition and the former is essentially constructive. What Nietzsche himself may have thought is subordinated to what in the author's opinion consistency and the logical consequences of his ideas demanded that he should think. The special doctrines chosen for consideration are the Overman and the Eternal Recurrence. These are represented as at first sight contradictions, in that the one posits constant development, the other constant return to previous stages. The final interpretation reconciles the seeming conflict by giving a symbolic meaning to both doctrines, of which the Recurrence thus becomes the esoteric form of the Overman. Both are ideals proposed to the will, not as some hard and fast product of future evolution, but as the formal end set for individual endeavor. The meaning of life as embodied in the Overman is no definite achievement but the constant readiness to surpass the man; and even more than the Overman the Eternal Recurrence is a symbol, never to be regarded in the light of actual physical events. The greatest possible test of the active will is the readiness to regard its activity as altogether limitless. Complete affirmation of life wills not merely for to-day but for countless ages without the shadow of change, nay, looks upon itself as altogether outside of time. This interpretation is not the usual one and Herr Ewald, while maintaining that it is based upon Nietzsche's writings, points out himself the many passages that contradict it; but in a study of philosophy rather than of a philosopher such a rejection of unsuitable portions of the text is admissible. The result might perhaps be regarded as a contribution to the prevailing voluntaristic philosophy, and, viewed from this aspect, has the merit of approaching the subject from a fresh standpoint. Its chief excellence as a Nietzsche-commentary is, in the reviewer's opinion, the energy with which all affinity between Nietzsche and Darwin is denied. In spite of the widespread tendency to regard Nietzsche's theories as the extension and application of the struggle for life and the survival of the fittest, such an interpretation is based upon

a misunderstanding of Nietzsche's most cherished convictions, and is perhaps itself due to the prevalence of a semi-Darwinian standpoint, which tends to regard all evolutionary theories as necessarily of the prevailing biological type.

G. N. DOLSON.

WELLS COLLEGE.

Nietzsches Philosophie. DR. ARTHUR DREWS. Heidelberg, Carl Winter's Universitätsbuchhandlung, 1904. Pp. viii + 561.

Five hundred and fifty pages seem a good many to be devoted to Nietzsche by a man who regards his value as consisting chiefly in the warning he affords against false methods in philosophy. Dr. Drews finds Nietzsche's writings stimulating and full of clever bits of observation and reflection, but with no systematic basis that will stand against criticism. He gives an unusually detailed account of Nietzsche's views, following strictly the chronological order and dwelling at some length upon the corresponding events of Nietzsche's life. The criticism is altogether from the standpoint of Dr. Drews' own conviction that every philosophy based upon the equation of consciousness and being is foredoomed to failure. Nietzsche, accordingly, is treated as the logical result of such attempts to dispense with the absolute. Endeavoring to embody his particular interpretation of *cogito ergo sum* in both his life and his philosophy, Nietzsche showed that its inevitable consequences are inconsistency in the one field and madness in the other.

G. N. DOLSON.

WELLS COLLEGE.

JOURNALS AND NEW BOOKS

REVUE PHILOSOPHIQUE. August, 1904, Vol. 29, No. 8. *Morale et Biologie* (pp. 113-135): D. PARODI. - Largely a criticism of Metchnikoff's 'Études sur la nature humaine.' Its view of science is optimistic, but not its presentation of nature. The present century commences to emphasize the discords, not the harmonies of nature. Man, in particular, is displayed as an example of poor adaptation to natural conditions. Metchnikoff gratuitously asserts a normal duration of life; he can not really make clear what a death instinct is; he misunderstands the basis of the fear of death. Neither biology nor sociology really suffices to establish the ends of human life. *Le sourire; étude psychophysiologique* (2e et dernier article) (pp. 136-151): G. DUMAS. - The development of the smile is to be explained on lines of economy of effort. It is most highly developed among the Japanese. All forms of the smile are compounds of the smile of pleasure and of the laughing smile; *e. g.*, the bitter, the defiant, the disdainful and the resigned smile. It is the laughing smile that is the source of the finer shades of expression in these various forms. The mechanical explanation of these developments is to be preferred to the psychological. *La logique du discours musical* (pp. 152-161): P. LANDERMY. - The philosophy of music has been despised thus far

in France. It is not a question of esthetics; for this logic of music precedes the study of the beauty of music. We organize the scale of sounds along lines similar to those on which we construct space, and this activity is just as worthy of the attention of the philosopher. It seems as though the soul did indeed 'count' in estimating the relations of sounds. *Les émotions de Bourse* (pp. 162-170): P. HATTENBERG. - The mentality of the French stock-exchange shares the general characteristics of crowds of less intellectual equipment. The inferior kinds of emotion prevail over the powers of judgment and reflection. *Les méthodes de la psychologie zoologique* (pp. 171-172): H. PIERON. - The business of the scientist is to predict; and the assumption of consciousness or the denial of its presence must be determined, for the scientist, entirely on that basis. *Analyses et comptes rendus* (pp. 173-216): G. RODRIGUES, *L'idée de relation*, FR. P. L. STEIN, *Der Sinn des Daseins*, L. ARRÉAT. P. SOLIER, *Les phénomènes d'autoscopie*, FURSAC. P. BONNIER, *Le sens des attitudes*, DANTEC. H. MÜNSTERBERG, *Harvard Psychological Studies*, J. PHILIPPE. R. KOSTER, *Die Schrift bei Geisteskrankheiten*, FURSAC. E. ACKERKNECHT, *Die Theorie der Lokalzeichen*, L. POITEVIN. N. V. VIASEMSKI, *Ismenenia organisma v periode sformivorania*, S. JANKILEVITCH. L. DECESNE, *La conception du droit et les idées nouvelles*, C. LALO. P. F. THOMAS, *Pierre Leroux, sa vie, son œuvre, sa doctrine*, A. GODFERNAUX. E. HALEVY, *La formation du radicalisme philosophique, t. III.*, F. PILLON. Also other shorter reviews. *Revue des périodiques étrangers*. Correspondence. Livres déposés.

THE PHILOSOPHICAL REVIEW. July, 1904. Vol. XIII., No. 4. Jonathan Edwards (pp. 393-408): F. J. E. WOODBRIDGE. - For a century and a half New England thought was dominated by Edwards, but at the present time his influence is largely negligible. "His work has failed not through refutation, but through inadequacy." This inadequacy results from the striking lack of connection between the really profound philosophy of Edwards' earlier years and his later Calvinistic theology. *The Psychological Nature of Causality* (pp. 409-419): W. B. PILLSBURY. - Accepting Hume's psychological method of investigation but rejecting its outcome, the author undertakes to point out anew the characteristics of the idea of causal connection. These are three - the first structural, the last two functional. Structurally the idea of a cause is always characterized by strain sensations. The functional conditions of the idea of causal connection are frequency of concurrence and harmony with other experience. In the dispute between parallelists and interactionists both parties appeal, in particular, to the last of these criteria. *Voluntarism and Intellectualism* (pp. 420-428): GUSTAV SPILLER. - Voluntarism and intellectualism are each one-sided. The truth is an organic unity of both. The intellectualists should realize that all science is utilitarian, and that judgment is always determined by need. The voluntarists, on the other hand, should understand that the needs and judgments of an individual must be harmonized with one another, with the needs of other individuals and with nature. *Discussions: Professor Bawden's Interpre-*

tation of the Physical and the Psychical (pp. 429-444): GRACE MEAD ANDRUS. — The author aims to show that Professor Bawden, in his attempt to give a new and simplified solution of the psychophysical problem, "presents no less than four distinct and mutually incompatible positions," and that "these inconsistencies may be traced to a fundamental ambiguity and shifting in the meaning of the chief terms employed, viz., 'experience,' 'function,' and 'tension.'" *The Identification of Mind and Matter* (pp. 444-451): MORTON PRINCE. — Dr. Prince concerns himself particularly with pan-psychism. He shows that we perceive what are really psychical facts, *e. g.*, feelings of pain, as brain events, because we perceive them visually; if we could perceive those same facts with our ears, we should experience them as sounds. In closing, the author emphasizes the anomalous nature of the phenomenon of motion. In the case of motion, the perceptual symbol and the reality perceived are homogeneous. Hence motion, alone among physical qualities, may be regarded as objectively real. *Reviews of Books. Summaries of Articles. Notices of New Books. Notes.*

BULLETIN DE L'INSTITUTE GÉNÉRAL PSYCHOLOGIQUE.

June, 1904, Vol. VI., No. 3. *Les rudiments psychiques de l'homme* (pp. 233-254): E. METCHNIKOFF. — Corresponding to the hundred rudimentary, useless organs of the human body we may expect to find many rudimentary, useless activities of the human mind. These are aroused, especially, by the emotion of fear, particularly in its hysterical forms. Instances of somnambulism are cited in this connection; it is a return to an earlier animal state, just as is lactation of the glands in males. *Expérience sur un perroquet* (pp. 255-258): H. SOUPLET. — The parrot created a phrase appropriate to a certain experience. *De l'Opisthopsychisme* (pp. 258-269): M. R. BARON. — This is the theory that what triumphs in the struggle for life is not fallible reason, but precise automatism. Movements thoroughly learned are unconscious movements. *Intégration des sensations* (pp. 269-271): M. G. BOHN. *De l'idéalisation en psychologie* (pp. 271-274): M. G. BOHN. *Conditions psycho-physiologiques de l'observation de l'action des rayons N* (pp. 276-279): M. J. COURTIER. — A new preparation for such observations. *Les rayons N et l'anesthésie* (pp. 280-282): D'ARSONVAL. — Nervous interference they occasion. *De l'action des mains sur les microbes* (pp. 282-316): M. L. FAVRE. — A study of healing by 'laying on of hands.' To avoid suggestion, a microbe, the *subtilis*, was used in the experiments. The hand were kept still in the vicinity of the microbe. The effect varied with the health and with the pulse rate of the several operators. The left hand had more power. The more influence the operator exerts on men by his presence the more he affects the microbes. Faults in the experiments. *Desiderata. Télépathie et télégraphie sans fil* (pp. 316-318): A. FOUILLEE. *Nécrologie. Livres donés. Sommaire des livres nouveaux.*

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NOTES AND NEWS

BRUCE R. PAYNE, who for two years past has been doing graduate work in philosophy and education at Columbia University, has been appointed to a professorship in William and Mary College.

HENRY A. RUGER, formerly assistant in psychology at Columbia University has accepted a position in the department of psychology of Colorado College. G. Cutler Fracker, professor of philosophy at Coe College, Cedar Rapids, Iowa, will succeed Mr. Ruger, at Columbia.

WE regret to announce that Dr. C. L. Herrick, editor of the *Journal of Comparative Neurology and Psychology*, died at Socorro, New Mexico, on September 15.

THE psychological laboratory of the University of Minnesota was completely destroyed by fire, September 24. The loss includes apparatus and books valued at \$2,000 as well as all records of experiments.

THE JOURNAL OF PHILOSOPHY

PSYCHOLOGY AND SCIENTIFIC METHODS

A WORLD OF PURE EXPERIENCE. II

V. WHAT OBJECTIVE REFERENCE IS

WHOSOEVER feels his experience as something substitutional, even while he has it, may be said to have an experience that reaches beyond itself. From inside of its own entity it postulates reality existing elsewhere. For the transcendentalist, who holds knowing to consist in a *salto mortale* across an 'epistemological chasm,' such an idea presents no difficulty, but it seems at first sight as if it might be inconsistent with an empiricism like our own. Have we not explained conceptual knowledge to be wholly constituted by things that fall outside of the knowing experience itself—by intermediary experiences and by a terminus that fulfills? Can the knowledge be there before these elements that constitute its being have come? And, if knowledge be not there, how can objective reference occur?

The key to this difficulty lies in the distinction between knowing as verified and completed, and the same knowing as in transit and on its way. To recur to the Memorial Hall example of my former article, it is only when our idea of the Hall has actually terminated in the percept that we know 'for certain' that from the beginning it was truly cognitive of *that*. Until established by the end of the process, its quality of knowing that, or indeed of knowing anything, could still be doubted; and yet the knowing really *was* there, as the result now shows. We were virtual knowers of the Hall long before we were nailed down and certified to have been its actual knowers by the percept's retroactive validating power.

Now the immensely greater part of all our knowing never gets beyond this virtual stage. It never is completed or nailed down. I speak not merely of our ideas of imperceptibles like ether-waves or dissociated 'ions,' or of 'ejects' like the contents of our neighbors' minds; I speak also of ideas which we might verify if we would take the trouble, but which we hold for true although unterminated perceptually, because nothing says 'no' to us, and there is no contradict-

ing truth in sight. To continue thinking unchallenged is, ninety-nine times out of a hundred, our practical substitute for knowing in the completed sense. As each experience runs by cognitive transition into the next one, and we nowhere feel a collision with what we elsewhere count as fact, we commit ourselves to the current as if the port were sure. We live, as it were, upon the front edge of an advancing wave-crest, and our sense of a determinate direction in falling forward is all we cover of the future of our path. It is as if a differential quotient should be conscious and treat itself as an adequate substitute for a traced-out curve. Our experience, *inter alia*, is of variations of rate and of direction, and lives in these transitions more than in the journey's end. The truncated experiences are sufficient to act upon—what more could we have *done* at those moments even if later verification were complete?

This is what, as a radical empiricist, I say to the charge that the objective reference which is so flagrant a character of our experiences involves a chasm and a mortal leap. A positively conjunctive transition involves neither chasm nor leap. Being the very original of what we mean by continuity, it makes a continuum wherever it appears. I know full well that such brief words as these will leave the hardened transcendentalist unshaken. Conjunctive experiences *separate* their terms, he will still say: they are third things interposed, that have themselves to be conjoined by new links, and to invoke them makes our trouble infinitely worse. To 'feel' our motion forward is impossible. Motion implies terminus; and how can terminus be felt before we have arrived? The barest start and sally forwards, the barest tendency to leave the instant, involves the chasm and the leap. Conjunctive transitions are the most superficial of appearances, illusions of our sensibility which philosophical reflection pulverizes at a touch. Conception is our only trustworthy instrument, conception and the Absolute working hand in hand. Conception disintegrates experience utterly, but its disjunctions are easily overcome again when the Absolute takes up the task.

Such transcendentalists I must leave, provisionally at least, in full possession of their creed. I have no space for polemics in this article, so I shall simply formulate the empiricist doctrine as my hypothesis, leaving it to work or not work as it may.

Objective reference, I say then, is a mere incident of the fact that so much of our experience comes as an insufficient and is of process and transition. Our fields of experience have no more definite boundaries than have our fields of view. Both are fringed forever by a *more* that continuously develops, and that continuously supersedes them as life proceeds. The relations, generally speaking, are as real here as the terms are, and the only complaint of the

transcendentalist's with which I could at all sympathize would be his charge that, by first making knowledge to consist in external relations as I have done, and by then confessing that nine-tenths of the time these are not actually there, so that our knowledge for the most part keeps only virtual, I have knocked the solid bottom out of the whole business, and palmed off a mere substitute of knowledge for the genuine thing. Only the admission that our ideas are self-transcendent already, such a critic might say, in advance of the experiences that are to terminate them, can bring solidity back to knowledge in a world like this, in which transitions and terminations are only by exception carried out.

This seems to me an excellent place for applying the pragmatic method. When a dispute arises, that method consists in auguring what practical consequences would be different if one side rather than the other were true. If no difference can be thought of, the dispute is a quarrel over words.

What then would the *salto mortale*, the immediate self-transcendence affirmed as something existing independently of experiential mediation or termination, be known as, what would it practically result in, were it true?

It could only result in our orientation, in the turning of our expectations and practical tendencies into the right path; and the right path here, so long as we and the object are not yet face to face (or can never get face to face, as in the case of ejects), would be the path that led us into the object's nearest neighborhood. Where direct acquaintance is lacking, 'knowledge about' is the next best thing, and such knowledge an acquaintance with what actually lies about the object, and is most closely related to it, puts within our grasp. Ether-waves and your anger, for example, are things in which my thoughts will never perceptually terminate, but my concepts of them lead me to their very brink, to the chromatic fringes and to the hurtful words and deeds which are their really next effects.

Even if our ideas did in themselves carry the postulated self-transcendence, it would still remain true that their putting us into possession of such really next effects *would be the sole cash-value of the self-transcendence for us*. And this cash-value, it is needless to say, is *verbatim et literatim* what our empiricist account pays in. On pragmatist principles therefore, a dispute over self-transcendence here would be a pure logomachy. Call our concepts of ejective things self-transcendent or the reverse, it makes no difference, so long as we don't differ about the nature of that exalted virtue's fruits.

Fruits for us, humanistic fruits, of course. If an Absolute were proved to exist for other reasons, it might well appear that *his*

knowledge is terminated in innumerable cases where ours is still incomplete. That, however, would be a fact indifferent to our knowledge. The latter would grow neither worse nor better, whether we acknowledged such an Absolute or left him out.

So the notion of a knowledge still *in transitu* and on its way joins hands here with that notion of a 'pure experience' which I tried to explain in my recent article entitled 'Does Consciousness Exist?' The instant field of the present is always experience in its 'pure' state, plain unqualified actuality, a simple *that*, as yet undifferentiated into thing and thought, and only virtually classifiable as objective fact or as some one's opinion about fact. This is as true when the field is conceptual as when it is perceptual. 'Memorial Hall' is 'there' in my idea as much as when I stand before it. I proceed to act on its account in either case. Only in the later experience that supersedes the present one is this *naïf* immediacy retrospectively split into two parts, a 'consciousness' and its 'content,' and the content corrected or confirmed. While still pure, or present, any experience—mine, for example, of what I write about in these very lines—passes for 'truth.' The morrow may reduce it to 'opinion.' The transcendentalist in all his particular knowledges is as liable to this reduction as I am: his Absolute does not save him. Why, then, need he quarrel with an account of knowing that merely leaves it liable to this inevitable condition? Why insist on its being a static relation out of time when it practically seems so much a function of our active life? For a thing to be valid, says Lotze, is the same as to make itself valid. When the whole universe seems only to be making itself valid and to be still incomplete (else why its ceaseless changing?) why, of all things, should knowing be exempt? Why should it not be making itself valid like everything else? That some parts of it may be already valid or verified beyond dispute, the empirical philosopher, of course, like any one else, may always hope.

VI. THE CONTERMINOUSNESS OF DIFFERENT MINDS

With transition and prospect thus enthroned in pure experience, it is impossible to subscribe to the idealism of the English school. Radical empiricism has, in fact, more affinities with natural realism than with the views of Berkeley or of Mill, and this can be easily shown.

For the Berkeleyan school, ideas (the verbal equivalent of what I term experiences) are discontinuous. The content of each is wholly immanent, and there are no transitions with which they are substantial and through which their beings may unite. Your

Memorial Hall and mine, even when both are percepts, are wholly out of connection with each other. Our lives are a congeries of solipsisms, out of which in strict logic only a God could compose a universe even of discourse. No dynamic currents run between my objects and your objects. Never can our minds meet in the *same*.

The incredibility of such a philosophy is flagrant. It is 'cold, strained, and unnatural' in a supreme degree; and it may be doubted whether even Berkeley himself, who took it so religiously, really believed, when walking through the streets of London, that his spirit and the spirits of his fellow wayfarers had absolutely different towns in view.

To me the decisive reason in favor of our minds meeting in *some* common objects at least is that, unless I make that supposition, I have no motive for assuming that your mind exists at all. Why do I postulate your mind? Because I see your body acting in a certain way. Its gestures, facial movements, words and conduct generally, are 'expressive,' so I deem it actuated as my own is, by an inner life like mine. This argument from analogy is my *reason*, whether an instinctive belief runs before it or not. But what is 'your body' here but a percept in *my* field? It is only as animating *that* object, *my* object, that I have any occasion to think of you at all. If the body that you actuate be not the very body that I see there, but some duplicate body of your own with which that has nothing to do, we belong to different universes, you and I, and for me to speak of you is folly. Myriads of such universes even now may coexist, irrelevant to one another; my concern is solely with the universe with which my own life is connected.

In that perceptual part of my universe which I call your body, your mind and my mind meet and may be called conterminous. Your mind actuates that body and mine sees it; my thoughts pass into it as into their harmonious cognitive fulfillment; your emotions and volitions pass into it as causes into their effects.

But that percept hangs together with all our other physical percepts. They are of one stuff with it; and if it be our common possession, they must be so likewise. For instance, your hand lays hold of one end of a rope and my hand lays hold of the other end. We pull against each other. Can our two hands be mutual objects in this experience, and the rope not be mutual also? What is true of the rope is true of any other percept. Your objects are over and over again the same as mine. If I ask you *where* some object of yours is, our old Memorial Hall, for example, you point to *my* Memorial Hall with *your* hand which *I* see. If you alter an object in your world, put out a candle, for example, when I am present, *my* candle *ipso*

facto goes out. It is only as altering my objects that I guess you to exist. If your objects do not coalesce with my objects, if they be not identically where mine are, they must be proved to be positively somewhere else. But no other location can be assigned for them, so their place must be what it seems to be, the same.¹

Practically, then, our minds meet in a world of objects which they share in common, which would still be there, if one or several of the minds were destroyed. I can see no formal objection to this supposition's being literally true. On the principles which I am defending, a 'mind' or 'personal consciousness' is the name for a series of experiences run together by certain definite transitions, and an objective reality is a series of similar experiences knit by different transitions. If one and the same experience can figure twice, once in a mental and once in a physical context (as I have tried, in my article on 'Consciousness,' to show that it can), one does not see why it might not figure thrice, or four times, or any number of times, by running into as many different mental contexts, just as the same point, lying at their intersection, can be continued into many different lines. Abolishing any number of contexts would not destroy the experience itself or its other contexts, any more than abolishing some of the point's linear continuations would destroy the others, or destroy the point itself.

I well know the subtle dialectic which insists that a term taken in another relation must needs be an intrinsically different term. The crux is always the old Greek one, that the same man can't be tall in relation to one neighbor, and short in relation to another, for that would make him tall and short at once. In this essay I can not stop to refute this dialectic, so I pass on, leaving my flank for the time exposed. But if my reader will only allow that the same 'now' both ends his past and begins his future; or that, when he buys an acre of land from his neighbor, it is the same acre that successively figures in the two estates; or that when I pay him a dollar, the same dollar goes into his pocket that came out of mine; he will also in consistency have to allow that the same object may conceivably play a part in, as being related to the rest of, any number of otherwise entirely different minds. This is enough for my present point: the common-sense notion of minds sharing the same object offers no special logical or epistemological difficulties of its own; it stands or falls with the general possibility of things being in conjunctive relation with other things at all.

In principle, then, let natural realism pass for possible. Your mind and mine *may* terminate in the same percept, not merely

¹The notion that our objects are inside of our respective heads is not seriously defensible, so I pass it by.

against it, as if it were a third external thing, but by inserting themselves into it and coalescing with it, for such is the sort of conjunctive union that appears to be experienced when a perceptual terminus 'fulfills.' Even so, two hawsers may embrace the same pile, and yet neither one of them touch any other part, except that pile, of what the other hawser is attached to.

It is therefore not a formal question, but a question of empirical fact solely, whether, when you and I are said to know the 'same' Memorial Hall, our minds do terminate at or in a numerically identical percept. Obviously, as a plain matter of fact, they do *not*. Apart from color-blindness and such possibilities, we see the Hall in different perspectives. You may be on one side of it and I on another. The percept of each of us, as he sees the surface of the Hall, is moreover only his provisional terminus. The next thing beyond my percept is not your mind, but more percepts of my own into which my first percept develops, the interior of the Hall, for instance, or the inner structure of its bricks and mortar. If our minds were in a literal sense *conterminous*, neither could get beyond the percept which they had in common, it would be an ultimate barrier between them—unless indeed they became 'co-conscious' over a still larger part of their content, which (thought-transference apart) is not supposed to be the actual case. In point of fact the ultimate common barrier can always be pushed, by both minds, farther than any actual percept, until at last it resolves itself into the mere notion of imperceptibles like molecules or ether, so that, where we do terminate in percepts, our knowledge is only speciously completed, being, in theoretic strictness, only a virtual knowledge of those remoter objects which conception carries out.

Is natural realism, permissible in logic, refuted then by empirical fact? Do our minds have no object in common after all?

Yes, they certainly have *Space* in common. On pragmatic principles we are obliged to predicate sameness wherever we can predicate no assignable point of difference. If two named things have every equality and function indiscernible, and are at the same time in the same place, they must be written down as numerically one thing under two different names. But there is no test discoverable, so far as I know, by which it can be shown that the place occupied by your percept of Memorial Hall differs from the place occupied by mine. The percepts themselves may be shown to differ; but if each of us be asked to point out where his percept is, we point to an identical spot. All the relations, whether geometrical or causal, of the Hall originate or terminate in that spot wherein our hands meet, and where each of us begins to work if he wishes to make the Hall change before the other's eyes. Just so it is with our bodies. That body of yours

which you actuate and feel from within must be in the same spot as the body of yours which I see or touch from without. 'There' for me means where I place my finger. If you do not feel my finger's contact to be 'there' in *my* sense, when I place it on your body, where then do you feel it? Your inner actuations of your body also meet my finger *there*: it is *there* that you resist its push, or shrink back, or sweep the finger aside with your hand. Whatever farther knowledge either of us may acquire of the real constitution of the body which we thus feel, you from within and I from without, it is in that same place that the newly conceived or perceived constituents have to be located, and it is *through* that space that your and my mental intercourse with each other has always to be carried on, by the mediation of impressions which I convey thither, and of the reactions thence which those impressions may provoke from you.

In general terms, then, whatever differing contents our minds may eventually fill a place with, the place itself is a numerically identical content of the two minds, a piece of common property in which, through which, and over which they join. The receptacle of certain of our experiences being thus common, the experiences themselves might some day become common also. If that day ever did come, our thoughts would terminate in a complete empirical identity, there would be an end, so far as *those* experiences went, to our discussions about truth. No points of difference appearing, they would have to count as the same.

VII. CONCLUSION.

With this we have the outlines of a philosophy of pure experience before us. At the outset of my essay, I called it a mosaic philosophy. In actual mosaics the pieces are held together by their bedding, for which bedding the Substances, transcendental Egos, or Absolutes of other philosophies may be taken to stand. In radical empiricism there is no bedding; it is as if the pieces clung together by their edges, the transitions experienced between them forming their cement. Of course such a metaphor is misleading, for in actual experience the more substantive and the more transitive parts run into each other continuously, there is in general no separateness needing to be overcome by an external cement; and whatever separateness is actually experienced is not overcome, it stays and counts as separateness to the end. But the metaphor serves to symbolize the fact that Experience itself, taken at large, can grow by its edges. That one moment of it proliferates into the next by transitions which, whether conjunctive or disjunctive, continue the experiential tissue, can not, I contend, be denied. Life

is in the transitions as much as in the terms connected; often, indeed, it seems to be there more emphatically, as if our spurts and sallies forward were the real firing-line of the battle, were like the thin line of flame advancing across the dry autumnal field which the farmer proceeds to burn. In this line we live prospectively as well as retrospectively. It is 'of' the past, inasmuch as it comes expressly as the past's continuation; it is 'of' the future in so far as the future, when it comes, will have continued it.

These relations of continuous transition experienced are what make our experiences cognitive. In the simplest and completest cases the experiences are cognitive of one another. When one of them terminates a previous series of them with a sense of fulfillment, it, we say, is what those other experiences 'had in view.' The knowledge, in such a case, is verified, the truth is 'salted down.' Mainly, however, we live on speculative investments, or on our prospects only. But living on things *in posse* is as good as living in the actual, so long as our credit remains good. It is evident that for the most part it is good, and that the universe seldom protests our drafts.

In this sense we at every moment can continue to believe in an existing *beyond*. It is only in special cases that our confident rush forward gets rebuked. The beyond must of course always in our philosophy be itself of an experiential nature. If not a future experience of our own or a present one of our neighbor, it must be a thing in itself in Dr. Prince's and Professor Strong's sense of the term—that is, it must be an experience *for* itself whose relation to other things we translate into the action of molecules, ether-waves, or whatever else the physical symbols may be.² This opens the chapter of the relations of radical empiricism to panpsychism, into which I can not enter now.

The beyond can in any case exist simultaneously—for it can be experienced *to have existed* simultaneously—with the experience that practically postulates it by looking in its direction, or by turning or changing in the direction of which it is the goal. Pending that actuality of union, in the virtuality of which the 'truth,' even now, of the postulation consists, the beyond and its knower are entities split off from each other. The world is in so far forth a pluralism of which the unity is not fully experienced as yet. But, as fast as verification comes, trains of experience, once separate, run into one another; and that is why I said, earlier in my article, that the unity of the world is on the whole undergoing increase. The uni-

² Our minds and these ejective realities would still have space (or pseudo-space, as I believe Professor Strong calls the medium of interaction between 'things-in-themselves') in common. These would exist *where*, and begin to act *where*, we locate the molecules, etc., and *where* we perceive the sensible phenomena explained thereby.

verse continually grows in quantity by new experiences that graft themselves upon the older mass; but these very new experiences often help the mass to a more consolidated form.

These are the main features of a philosophy of pure experience. It has innumerable other aspects and arouses innumerable questions, but the points I have touched on seem enough to make an entering wedge. In my own mind such a philosophy harmonizes best with a radical pluralism, with novelty and indeterminism, moralism and theism, and with the 'humanism' lately sprung upon us by the Oxford and the Chicago schools.³ I can not, however, be sure that all these doctrines are its necessary and indispensable allies. It presents so many points of difference, both from the common sense and from the idealism that have made our philosophic language, that it is almost as difficult to state it as it is to think it out clearly, and if it is ever to grow into a respectable system, it will have to be built up by the contributions of many cooperating minds. It seems to me, as I said at the outset of this essay, that many minds are, in point of fact, now turning in a direction that points towards radical empiricism. If they are carried farther by my words, and if then they add their stronger voices to my feebler one, the publication of this essay will have been worth while.

WILLIAM JAMES.

HARVARD UNIVERSITY.

THE MUTABILITY OF THE SELF. RESPONSIBILITY AND FREEDOM

I

Sec. 1.—"Whilst we think," says Professor James,¹ "our brain changes, and like the aurora borealis, its whole internal equilibrium shifts with every pulse of change. The precise nature of the shifting at a given moment is the product of many factors. . . . But just as one of them certainly is the influence of outward objects on the sense organs during the moment, so is another certainly the very special susceptibility in which the organ has been left at that moment by all it has gone through in the past. Every brain state is partly determined by the nature of this entire past succession. It is out of the question, then, that any total brain-state should identically recur. Something like it may recur; but to suppose it to recur would be equivalent to the absurd admission that all the states that had inter-

³ I have said something of this latter alliance in an article entitled 'Humanism and Truth,' in *Mind*, October, 1904.

¹ 'Psychology,' I., 234.

vened between its two appearances had been pure nonentities, and that the organ after their passage was exactly what it was before."

I think that all neurologists will agree that this statement is sound.

But if this is true of the activities in the brain, it is certainly as true of the activities in the nervous system taken as a whole; and this may be expressed in our terms by saying that no given neururgic pattern can ever recur; *i. e.*, each neururgic pattern must be a bran-new neururgic pattern.

Sec. 2.—But if the theory of a thoroughgoing neururgic and noetic correspondence is valid, then we may make a corresponding statement in relation to the field of attention at least. "Each moment of consciousness," says Bosanquet,² "is full of a given complex of presentation, which passes away and can never be repeated without some difference." And so, again, Professor James,³ "No state once gone can recur and be identical with what it was before." "Every thought we have of a given fact is, strictly speaking, unique, and only bears a resemblance of kind with our other thoughts of the same fact."⁴

I think that all psychologists will agree that this statement also is sound.⁵

But if this is true of that part of the noetic pattern which gives us the field of attention, then, if the views we are here presenting are valid, it must be true also of the noetic pattern as a whole; and we may then say that, as no neururgic pattern can ever recur, so no noetic pattern can ever recur;—*i. e.*, each noetic pattern must be a bran-new noetic pattern.

Sec. 3.—But if this is true of each noetic pattern as a whole, then it must be true of its parts. If it is true of that part of the whole pattern which we call the field of attention—as we have above seen is acknowledged—then it must be true also of that part which I have called the field of inattention, unless we deny that the field of attention and the field of inattention are fundamentally of the same nature.

We may say, then, that in each moment the field of inattention is a bran-new thing. And, if we assume that the field of inattention and the Self are the same and identical, as I have held in a previous article, then we are led to hold that the Self of each moment is unique. That no Self 'once gone can ever recur and be identical with what it was before.' That the Self of any individual man, in each moment, is a bran-new Self.

² 'Essentials of Logic,' p. 74.

³ 'Psychology,' I., p. 230.

⁴ *Ibid.*, p. 233.

⁵ Compare Shadworth Hodgson, 'Metaphysic of Experience,' I., p. 166; and Professor Royce, 'Outlines of Psychology,' p. 199, for similar statements.

Sec. 4.—I do not see how one can avoid this conclusion without denying the truth of the neurological and psychological statements above referred to, which are very generally accepted as valid; nor without showing that the various positions maintained in the previous papers of this series are invalid.

Furthermore, I am convinced that much favorable evidence could be presented in favor of this conclusion, did space permit; especially noteworthy being the fact that it enables the psychologist to give an adequate account of the changes and development of the characters of individual men as we observe them, which is impossible, in my view, if we hold that the Self is an unchangeable entity.

Yet it must be agreed that this conclusion is quite incompatible with the conception of the Self held by the mass of intelligent men.

In the remainder of this article I shall consider one important notion which is bound up in our minds with the conception of the Self as an unchangeable entity; viz., the doctrine of individual responsibility; and shall attempt to show that it is possible to restate this doctrine in terms of the thesis here presented; and that in so doing we, at the same time, avoid formidable difficulties which under the current view arise in connection with the conception of the freedom of the Self.

II

Sec. 5.—All men are practical before they are consciously rational. We inherit or acquire habits of action which are followed without thought, and only later, when doubt arises as to the meaning or propriety of these habits of action, do we stop to question the rationality of the acts to which they lead us. The doctrine of the individual's present responsibility for the acts of what we call the same individual in the past is without doubt an attempt to state the rationality of certain habitual actions of men, in relation to their fellow men, which were established in the race long before any clear theory of the nature of responsibility was gained. It is true that, coordinately with this purely objective consideration, we look within, and find within us the voice of conscience, which also tends to establish this conception; but it can scarcely be doubted that without any relation to this inward looking of the more highly developed man, the customs of punishing man for his deeds in the past, which were established in the earliest infancy of the race, must have led the early thinker to a conception of responsibility very similar to that which we find current to-day.*

* It might be objected here that the maintenance of such a purely objective attitude as is here suggested in considering this subject is really impossible; that we can not account for the acts of men as objectively studied without taking into consideration the motives of the men;—that we would not be led

The common man looks upon the individual man's body to-day as the same as the body of like nature which existed yesterday; and thus it is most natural for him to think of the man's Self to-day as the same as his Self of yesterday. It has served him well also in practice to punish the body of the individual man to-day for the deeds of what he calls the same individual man in the past. So it has come about that all people with one accord consider it perfectly rational to discipline an individual on the basis of this assumption that the man's Self is the same Self which was instrumental in producing the acts of his body in the past.

Sec. 6.—This way of thinking leads to good practical results which are on the whole worked out into a fairly consistent rational system. But it must be granted that this rationality is not thoroughgoing; for in practice it has been found undesirable to carry out thoroughly our system of rewards and punishments as if the individual Self persisted from moment to moment; and we have therefore come to hold again as a matter of practical social value, that the individual man is responsible under certain conditions, while under other conditions he is not.

The attempt to draw a line between responsible acts and irresponsible acts has led to rough and ready rules, which work well enough, to be sure, in ordinary cases, but which very evidently break down under the stress of the finer distinctions which have come into prominence in the highly developed life of to-day. The judgments of our law courts, and the teachings of our ethical leaders are fraught with inconsistencies in this regard of which it is not worth while here to give examples.

Sec. 7.—But, beyond this, a very fundamental philosophical difficulty has arisen in the attempt to uphold the rationality of our procedure in connection with the acceptance of this doctrine of responsibility, together with the notion of the immutability of the Self.

to hold other men responsible for past acts did we not know the inner sense or responsibility for our own acts in the past.

I am free to admit that this is true in connection with the developed notion of responsibility as we know it, and indeed that the early man might never have held his neighbor responsible had he not experienced within himself the germ of the sense of obligation. On the other hand, it seems certain that this inward sense of responsibility, as we know it, could not have developed to be what it is, had not the application of this sense of our own responsibility to other men been of great practical benefit to man in the course of his development. Had it been disadvantageous to the race to hold other men responsible for their acts of the past, we might still feel a certain undeveloped sense of guilt or remorse, but we certainly would not make practical efforts to place responsibility in others, or to distribute reward and punishment. For a fuller consideration of this subject compare my 'Instinct and Reason,' Ch. XV., on 'Conscience and the Sense of Duty.'

Assuming that the Self of the man of yesterday is the same Self as that of the individual before us to-day, it is clearly absurd to hold it to be rational to reward or punish him for his acts of yesterday in case he could not have acted differently than he then did; and we therefore assume that his Self of yesterday, remaining the same Self, might have acted differently; that is, that his choice was undetermined by the nature of his Self, which might have acted in either of two contradictory ways.

It seems to me clear that we have here the origin of the so-called 'free-will controversy.' As Professor J. S. Hyslop has said,⁷ "It is only the question of punishment that can give any importance to the freedom of the will and responsibility. Were it not for this very practical problem, there would probably be no interest attached to the question." Or as President Arthur T. Hadley puts it,⁸ "The moral sense of those who reason about these things to-day demands some distributive fairness in the allotment of rewards and punishments. If a man really has a choice this necessity is met. To save its sense of justice, while imposing physical penalties and preaching moral ones, society asserts the existence of such a choice and the responsibility that goes with it. These facts go far to explain the teaching and general acceptance of the theory of the freedom of the will. From the standpoint of modern science this theory is little short of an absurdity. From the standpoint of modern morals it is little short of a necessity. The community must compel its members to exercise self-control, and must justify itself for punishing them when they fail to exercise it. Both of these results are secured by the teaching of the 'freedom of the will.'"

Sec. 8.—It would be absurd to attempt to discuss adequately this theory of the so-called 'freedom of the will' in such a paper as this; but I may be allowed, perhaps, to state my own position briefly in order to make clear what follows. As a part of Nature, my Self of this moment is determined just as any other part of Nature is. Freedom means lack of restraint. If with this lack of restraint, I perform act α , and in so doing am free to act in accord with the nature of my Self, then, evidently, remaining identically the same Self, I cannot perform an incompatible act β ; for if I did so I would not be acting in accord with the nature of my unchanged Self, and would therefore be under compulsion, and therefore not free. It would appear, therefore, that we must give up either the notion that the Self is free to act according to its own nature, or else the notion that it could act otherwise than it does act; and this latter notion is one men of my way of thinking prefer to abandon; prin-

⁷ *Mind*, N. S., 10.

⁸ 'Freedom and Responsibility,' p. 69 ff.

cipally because we find it difficult to harmonize with the fact that our Selves are part and parcel of the Universe in which law prevails.⁹

III

Sec. 9.—Let us turn now to consider what change is necessary in our conception of individual responsibility in case we reject the notion that a man's Self is an immutable Self, upon which the common conception of responsibility is based, and in its place accept the view that the Self of an individual man is in each moment a brand-new Self.

In the first place, it at once appears that if we hold this latter view the main ground for the indeterminist's defence of what he calls the 'freedom of the will' disappears; for this dogma no longer serves him in his attempt to make the practical outcome of his conception of responsibility appear rational. For if a man's now existing Self is not the same as the Self which committed act α in the past, it appears irrational in any event, according to the current conception of responsibility, to reward or punish this now existing Self for what was the act of another Self: and it therefore is of no importance, as far as the doctrine of responsibility is concerned, whether this other Self of the past could or could not have committed act β instead of act α , which it did commit. In either case we are compelled to find other than the current grounds for the enforcement of the notion of personal responsibility.

Sec. 10.—And this leaves quite open the whole question as to the nature of the freedom of the Self in willing, which, in my view, can then be so stated as to harmonize the opposition between the determinist and the indeterminist. For we may hold with the determinist that the Self of any moment must act in one special way in accordance with its nature and can not act in any other way. Nevertheless, we may hold with the indeterminist that in thus acting it is always free. For, as we have seen in earlier papers of this series, the nature

⁹In my view we gain from introspection the notion that we might have acted otherwise than we did in any past moment principally through a misinterpretation of the sense of freedom which always goes with the act of will. The act of will involves the breakdown of a deadlock, and therefore involves the sense of freedom which always goes with the removal of restraint. Somewhat in the same vein Professor C. A. Strong in this JOURNAL, I., 5, p. 127, has held that "the consciousness of freedom arises when alternative courses of action are weighed against each other. Neither is strong enough to draw us automatically in its direction; if it were there would be no deliberation; and only in deliberation can there be a sense of freedom. We are free to choose either course; that is, with reference to neither are we forcibly led captive by the other. . . . Freedom is the opposite of bondage. The bondage is to any thought of action that determines the act automatically."

of the noetic pattern existing at any moment must always be to some extent determined by the nature of the Self of that moment. In certain cases environmental influences, or pre-existing 'psychical dispositions,' may *appear* to force the action in certain lines: but this, as we have seen, is an illusion and not a fact. For the Self even in such cases must always either welcome or reject the form of emphasis thus forced upon it, and in so doing must always be free to act in accordance with its own nature.

IV

Sec. 11.—We may turn, then, to the consideration of the conception of responsibility itself, in relation to the view that each Self in each moment is a new Self.

If we could study the actions of men without any reference to our own introspective experience, much as we study the actions of ants and bees, we would note that the individual man to-day is rewarded or punished for his acts of his individual body in previous days or months or years. It is this fact that we speak of as the enforcement of the doctrine of individual responsibility.

But, as we have already seen, it is reasonably certain that punishment for crime was first devised as a means of individual protection, and rationalized later on by reference to inward experience in connection with the conception of a permanently existing, immutable Self. And if this is true it seems clear that if men had long since recognized, as a fact, that the Self which actuates the man when he commits a crime is not the same as the Self which actuates the man who is punished, nevertheless, they would have adopted a self-protective system of retribution essentially of the same type as the system found among us to-day. On the other hand, it is certain that in such a case the rationalized conception of the nature of objective responsibility would have been very different from that which is now current.

It is clearly of no importance to the practical working of such a protective system as we are here considering whether the Self of the man punished is, or is not, the same from moment to moment, provided the acts of the individual man whom we keep in view are *practically* what we call the same from moment to moment under like environmental conditions. Had men then looked upon the Self as an everchanging Self, they, in attempting to explain the rationality of their conduct, would doubtless have held merely this: that the Self of the individual man whom they held responsible in this moment would not be what it is to-day had not a Self of a certain recognized type existed in connection with the man's body at the

time of the criminal act; and that a Self practically similar to this past Self of his is likely to recur at any moment; and that they are warranted in taking steps to prevent the recurrence of such a vicious Self, or to protect themselves from its acts if it should recur.

Now, as psychologists who are accustomed to deal with the consciousness of any moment from a genetic standpoint, we are surely bound to uphold just such a view. Nay, we are bound to go farther, and to hold that the Self of an individual man at any moment, even though it be a bran-new self, is nevertheless what it is because other Selves of definite characters have in the past existed in connection with the individual man's body; and that this Self of the present moment must be what it is because of the inheritance of forms which have occurred in the life history of an indefinitely long line of ancestors, as well as because of modifications which have been effective during the individual's life: and that the development of the form of the moment's Self must necessarily tell of influences due to this inheritance, and to the past experiences which have influenced the nature of the Selves which in the past have been thus related to the Self of the present moment.

Sec. 12.—If we assume that this view of the ever-changing form of the individual's Self had been adopted, in connection with the conception of the dependence of the nature of the Self of any moment upon other Selves which have existed in connection with his individual body, then clearly it would have been very simple to claim a rational basis for our mode of action in relation to rewards and punishments on the ground that we have thus devised a system of protection which aims:

(1) To avoid a repetition of conditions under which a man's new Self will be practically the same Self that acted criminally under those conditions in a previous moment; and

(2) Where this is impossible, to make attempt to change the nature of the man's future Selves, (A) by fear of punishment, or (B) by giving the man new interests which are incompatible with the appearance of such Selves as have acted criminally in the past—*i. e.*, by changing the nature of the noetic patterns which occur in the man, and the Selves which are part and parcel of these noetic patterns; and

(3) If none of these methods serves the end of protection, to isolate the man who has been a criminal so that he can do no harm in the future even if Selves recur in connection with his body which are closely similar to the Selves of the past which have committed criminal acts.

Sec. 13.—It is clear that such a conception of the nature of responsibility would have one great advantage over that now current;

for it would avoid all the questions as to the existence of irresponsibility, of which we have spoken above, which lead to much inconsistency in our legal procedure. For clearly under the view here presented no Self can ever be irresponsible. Responsibility must be thoroughgoing. Every Self must at all times bear the burden or feel the helpfulness of all of the deeds of his individual body in the past. And if this is granted it becomes a mere question of prudence as to how far we shall punish crime—a matter for careful consideration whether it is more important to our social life to aim to reform the Self of the criminal in one way or another, or to isolate the man so that his Self as relatively unchanged can do no harm to his fellow man.

HENRY RUTGERS MARSHALL.

NEW YORK CITY.

REVIEWS AND ABSTRACTS OF LITERATURE

Why the Mind has a Body. C. A. STRONG. New York, The Macmillan Company, 1903. Pp. x + 355.

The problem set for himself by the author of this well-written and well-printed volume is that of the relation of mind and body, a problem at once psycho-physical and metaphysical. Psycho-physically the solution is called parallelism, metaphysically it is pan-psychism. The final method adopted is the metaphysical, but only after the empirical has been pushed to its last possibilities. This dallying with the empirical aspects of the question is excused by the author on the ground that such has been the basis of the discussion heretofore, though he himself realizes that no adequate solution can be attained apart from an analysis of the nature of mind, matter and causation. That a full half of the book is devoted to these preliminaries is perhaps indicative that the author is not himself altogether free from the bondage of these same empirical facts. The logical and metaphysical aspects of the problem are too important to admit of such relative waste of space by one who is fully awake to the significance of them.

The work falls into two parts devoted to the consideration of the facts and causal theories, and the final metaphysical explanations of these. The facts are formulated in the law 'first, that consciousness as a whole never occurs except in connection with a brain-process; secondly, that particular mental states never occur except in connection with particular brain-events.' The temporal relations of the two series are not determinable but of the truth of the correlation there is practically no doubt. The theories as to the causal relations of these facts are interaction, automatism and parallelism, representative of which are Professor James, Mr. Huxley and Professor Paulsen. The most satisfactory of these is parallelism, based as it is, not merely on the *a priori* grounds of the prin-

ciple of the conservation of energy and the nature of causation, but also on the empirical facts of the minute correspondence between mind and brain. The arguments usually relied on, however, by parallelists are not the empirical, but the rational, and these are not quite conclusive, since the law of conservation of energy is only inductive and formulated on the basis of non-conscious phenomena, and causally we find at least a uniform sequence between mental and physical, even though quantitative relations are not possible. Accordingly, we must resort to metaphysics for the final solution of the matter.

It is to be regretted that this resort to metaphysics was not more prolonged and complete, for it would seem that an analysis of the conceptions of mind, matter and things-in-themselves ought to be far more thorough and detailed than the examination of the admittedly inconclusive causal theories, and yet the chapter on consciousness is one of the shortest and most peremptory of the book. The general position of this second part is perhaps best described by calling it the uncritical translation of the psychological point of view into a metaphysics. One might imagine the author to be a Scotch realist partially converted to the idealism of Berkeley with which, indeed, he compares his system. The only reality we know immediately is our own stream of consciousness which resolves itself into a series of mental states or thoughts, each one external to its fellows and really independent. Relatively to the present moment the past experience "is in the position of another mind, and the knowledge of it necessarily transcendent; and that quite irrespectively of the subtle question whether that experience in any sense still exists. Not only is the past experience as inaccessible as if it were in another consciousness, but . . . it literally *is* another consciousness, although one no longer existent." Our mental state is real so long as it lasts but no longer, and there is no other reality save this or one analogous to this, a real self or subject being no possible object of experience. Accordingly, the physical world is our idea, and matter the name for a particular series of our perceptions.

Having reached this psychological point of view the problem arises as to whether this subjectivism is the last word of philosophy or whether there is anything in our experience to carry us beyond its bounds. Is the sphere of reality coextensive with our own mental states, or are there extra-mental realities? That there are such is not capable of strict proof, though the greater part of this metaphysical portion of the book is devoted to a consideration of the probabilities of the case. That there are other minds than our own is accepted on instinctive, rather than rational, grounds since 'neither experience nor reason can fully account for the knowledge.' Yet, since no man doubts the existence of these, we may assume them, and thus arrive at the reality of at least this kind of trans-subjective being, obtaining a foothold beyond ourselves from which we may pass on to independent realities other than minds, for if some, why not many? These non-mental, transcendent realities are called things-in-themselves, or the realities corresponding to the cluster of perceptions we know as matter. That there are these things-in-themselves is prob-

able, because, otherwise, we must conceive the world as made up of isolated minds separated by great gaps, yet, in some miraculous way, connected. The vast spaces now apparently filled by matter would be emptied of all corresponding reality, and minds would be left in helpless loneliness. Such a conception seems to afford no basis for the continuity so much to be desired by thought. The thought is an odd one, but it is quite in accord with the author's psychological point of view which sees in the physiological process a mediation between mind and mind. Again, this physiological process itself furnishes a further argument since, unless a reality corresponds to it, we would have a perception at once its own object and cause, an actual perception mediated by a series of possible perceptions starting from itself. The fact that matter can destroy mind seems to the author a new, as well as a convincing, proof that it is not a mere phenomenon of mind. Finally, such an hypothesis makes the origin of mind intelligible as an evolution from these lower forms which correspond to matter. Yet, on the whole, this leap to the existence of things-in-themselves "must be confessed to be non-rational. Things-in-themselves can not be logically demonstrated, . . . for the simple reason that no argument having only empirical facts in its premises can legitimately have extra-mental existences in its conclusion." Yet, on the basis of 'some deep pre-rational instinct,' we may safely take this leap, since only so can we give continuity to our conception of the universe.

Phenomenalism forgets that metaphysics can not change facts, and that matter, although known only as our perception, is not an airy nothing, to be treated as without real significance—a suggestion which the idealist might perhaps hand back to the author for further consideration.

But, granted things in themselves, their nature must be in some sort determinable. They can not be exactly the same as our perceptions, since they are transformed in the process by which they are imprinted on the mind, that process being the counterpart of the physiological process by which an object affects the brain. That this relation of thing to idea is one of imprinting is no mere theory, as one might suppose, but is matter of proof, for we know that the physical world is in all its parts symbolic of the real world. Hence the things are not corporeal and are best thought as akin to minds, since our concept of reality is derived from minds, and since we can, thus, best explain the origin of minds. Accordingly, the pan-psychist conception of reality must be reasonably admitted and physical objects assumed to have as their cause a low form of mental state.

The metaphysical conception thus reached is applied in conclusion to solve the problem of the relation of mind and body. Interactionism, in which the matter acted on is phenomenal, is untenable because of the absurdity of an interaction between a reality and its shadow. In its dualistic form, the theory fails to explain the association of two such disparate things as mind and matter and also to make intelligible the origin of mind from matter or anything else. Automatism is naturally even more irreconcilable with pan-psychism since it makes the phenomenon the explanation of the reality. Finally, parallelism in the form of

psycho-physical idealism, seems best to answer the conditions. The thing-in-itself symbolized by the brain is not a reality other than the accompanying consciousness, and the relation between it and the brain is that of reality and perception. The brain, phenomenally, is only the shadow cast on a consciousness; really, it is consciousness itself—it means or symbolizes a conscious state for the state observing it, whether that state be its real self or another. Phenomenally, then, the brain process is later than the mental, since it is the effect of the latter upon some mind, and is mediated by a physiological process requiring time; really, it is simultaneous with it since they are identical. Under either aspect, the term ‘parallel’ fails to describe the relation, but it serves to note that the brain is not a thing in causal relations with the mind. When, for instance, I perceive a desk it is not that the perceived object desk acts on my mind but that the real desk affects real retinas and these act upon real nerve fibers and these stimulate a real brain, which is my consciousness itself. Thus the principle of the conservation of energy is not violated since it holds of the phenomenal material series, and yet the efficiency of consciousness is vindicated, for the real process is between the psychical things-in-themselves.

Without pressing any of the serious difficulties which arise in the working out of this conception, and applying only the author’s own standard, this pan-psychist conception seems to be no more adequate a solution than that of the interactionist. The concepts of mind and brain remain just as disparate, and their relation just as inexplicable, when we call them thing and symbol, as when we think them as two realities. How mind can act on mind and produce symbols so utterly unlike itself remains as much of a problem as ever, while the empirically concrete way in which the whole theory is conceived makes the logical solution hopeless. Although the categories of thing and quality are discarded, the relation of knowledge to its object is thought in apparently spatial terms. There seems a failure to appreciate the logical significance of the psychological point of view.

NORMAN WILDE.

THE UNIVERSITY OF MINNESOTA.

Theism. BORDEN P. BOWNE. New York, Cincinnati and Chicago, American Book Company.

Professor Bowne has revised his older work on the ‘Philosophy of Theism’ and has added about fifty per cent. of new matter dealing especially with ‘the arguments from epistemology and metaphysics.’ Thus changed, the work has to do chiefly with ‘the nature and value of theistic logic.’ Kant’s position, that the ontological argument proves nothing and that the teleological and the cosmological arguments depend upon it, is accepted so far that the proof for the existence of God is admitted to be not demonstrative but to rest upon the assumption of the existence of a perfect being. But ‘essentially the same postulate underlies our whole mental life’ and ‘this element of faith can not be escaped in any field of thought,’ hence we must seek the ‘practical and vital basis of

belief' and understand that 'logic has only a regulative function with respect to the great beliefs by which men and nations live.' "The conclusion is that theism is the fundamental postulate of our total life. It can not, indeed, be demonstrated without assumption, but it can not be denied without wrecking all our interests."

Religion is a fact of man's nature, and is neither explicable by its first appearances, nor is it identical with any of its forms, but it is man's instinctive response to the world without and within him. The scholar is to investigate the rational grounds for this religious response, and he finds that it centers in theistic belief. Investigation may show such a belief to be 'absurd or contradictory,' or it may be related only to the religious sentiment 'without any significance for pure intellect,' or it may 'appear as the demand of our whole nature' and this last 'the course of our study must show,' for 'our nature reaches out after God so naturally' that we have a basis for theistic belief as certain as is the basis for our intellectual systematization of the universe. With such a starting point the logical method will not be that of 'rigor and vigor' which admits 'nothing that can be doubted' but its opposite which doubts 'nothing except for reasons'; this too being the method of all fruitful science which leaves the other to the *a priorist* in his closet, for the scientific man often does not so much as know the difficulties which the theorist with his method of 'rigor and vigor' can bring against his argument.

As cognitive beings we desire to know and we assume that the universe is comprehensible. So we work over reality as it is immediately given us and construct a rational system, thus gaining two realms of reality, one as it is immediately given us and the other as it is worked over by our minds. But science takes the latter as truth and the former merely as appearance, projecting our mental nature and subjective interests upon nature as indeed we must unless we are prepared to renounce the search for truth and to give up science.

As moral and religious beings we follow the same process, that is, we add moral and religious worlds to the cognitive. In all three we are forced on by the needs of our nature, in all there is the same assumption, in all there is the same impossibility of rigid proof, against all the same difficulties may be urged, and in all fruitful results are attained only as men follow nature, and seek to realize that which shall satisfy their needs.

Turning then to the argument Professor Bowne follows Lotze in putting the argument for unity in the foreground and in basing it also on the solution of the problem of action and interaction. He recalls Lotze again in his argument for the personality of God as he shows that 'complete personality is possible only to the Absolute.' The conclusion of the whole matter is as follows: "Of all these ideals which rule our life theism is the supreme manifestation sum and source. The cognitive ideal of the universe, as a manifestation of the Supreme Reason, leads to theism. The moral ideal of the universe, as a manifestation of the Supreme Righteousness, leads to theism. The practical ideal of a 'far-off divine event to which the whole creation moves' leads to theism." So far as logic goes the arguments against theism, to say the least, are not

more cogent than those for it, while the anti-theistic systems deny these great needs of our higher nature.

The book is a vigorous discussion and will serve the purpose its author has in view, but it is not a distinct contribution to the philosophy or to the logic of theism. The difficulty is that it is the old argument 're-written and extended' while science demands a new study throughout and not a going over again of the old ground. The scientist undoubtedly projects himself upon the world and takes his reconstruction of reality as truth. But he can ignore this fact and with it all the theoretical difficulties urged with 'rigor and vigor,' or if he listen to them he is not seriously disturbed, though he may find no answer. For he is concerned chiefly with that which is proximate, and the rest is in a background more or less dim. He may be a monist, but it does not occur to him to doubt the experimental method or the value of his results because Professor James suggests that pluralism may have much to urge in its behalf. But the theologian has his monism in the front of his discussion, so that even Professor Bowne must begin with it. The scientific man will not deny interaction even though he can not argue how it must be in the nature of things, but to the theist our intellectual sanity is threatened if we doubt the ultimate unity. The showing that science also must use the same metaphysical arguments if it is to continue truly sane and sound is conclusive, that is, if the scientific man is to follow out his science into metaphysics. But it is not so apparent if he be content to remain 'practical.' The difficulty in short is this, science deals with the immediate and the practical, leaving ultimate questions to an ultimate philosophy, while theology thrusts the ultimate questions into the foreground and declares that all our interests depend upon the acceptance of certain solutions.

The reply to science, that its difficulties are as great, is not quite relevant, for it gets on very well without waiting for a discussion of unity, nor of the absolute, but theism must discuss them, for it puts them into its definition and declares God to be Absolute, Infinite and Personal. This definition of God is from scholasticism, its attempted definition of a perfect being, and its proper proof is scholastic, the proof which Professor Bowne so much dislikes with its method of 'rigor and vigor.' To maintain the definition and to discard its method of proof is impossible. Kant attempted it without success and those who follow him do not succeed where he failed. To give up the metaphysical proofs for a metaphysical conception, and then to attempt to maintain the conception as reality on practical grounds is to involve oneself in difficulty. Is it true that man's religious nature demands this concept of the metaphysical absolute, or does man's religious nature gain its gratification in many ways?

The theist argument should be restated, after a study of the whole subject from the point of view of the philosophy of religion. But this will involve a renewed study of the concept, God, and with it a reconsideration of the most fundamental positions of theology. For such an

investigation we wait, and we wish Professor Bowne would devote his high powers to it.

GEORGE WM. KNOX.

UNION THEOLOGICAL SEMINARY.

Wirtschaft und Philosophie. II. Die Philosophie u. die Lebensauffassung der germanisch-romanischen Völker auf Grund der Gesellschaftlichen Zustände. DR. ABR. ELEUTHEROPOULOS. Berlin, Ernst Hofmann & Co. 1901. Demy 8vo. Pp. 15 + 421.

The thesis, as suggested by the title, is the dependence of the philosophy of an age upon its social, and especially its economic, conditions. This dependence is due to the fact that in all philosophy, even in the field of mathematics, thought marches under the banner of sentiment. The author believes that in this present age there is hope that man will take a purely scientific view of things; and it may be said that it is his purpose to forward that end.

The present age is depicted as the 'bloom' (Blütezeit) of the German nation proper, corresponding to the days of Macedonian dominion. But the crowning bloom of the European peoples, corresponding to the Periclean age, extended from 1670 to 1730—the age of Louis XIV. The mark of flourishing periods and peoples is the presence among them of an order attained by fierce strife. The existence of this order, however, and the consequent welfare and refinement, produce a quick decay; first the weak, and then the strong but surfeited, adopt and preach doctrines of self-negation. And these classes, the victors and the vanquished in the strife that produced the period of bloom, are always found therein, always corrupt it. With renewal of strife may come regeneration, and finally another 'Blütezeit.' At present, socially the movement and contention is towards a democracy, in which the weapons, I take it, wielded by the destined victors, are those of scientific knowledge.

From the first volume of the series, on the philosophy and conceptions of life held by the Greeks, are drawn many analogies, some of them of interest. Erigena and Hesiod stand for the heroic days of the older and the newer worlds. Locke is classed with Zeno; while in Berkeley and Leibnitz, singing the jubilant philosophy of the modern 'Blütezeit,' is found a parallel to the 'Dithyrambus of Mind,' sounded by Anaxagoras in Periclean Athens. Kant (with Voltaire) is the modern Socrates, 'der schlimmste Sophist'; to maintain respect for morality he insisted on the false presupposition of freedom, and, in general, aided to produce the evils we now contend with, individualism and transcendentalism. Fichte and the rest of the idealists, of course, correspond to Plato, standing as he did in the way of the Democritean interpretation of things.

The author protests against the false assumption that results from the use of one word, like Christianity, to stand for many beliefs radically different. Different times have kept the generic name for religions that they successively formed to meet their different needs. Thus, to the Jews, Christ's teachings were a consolation. Paul, in giving them a

universal character and making them suitable to the whole dying Roman world, kept the name. The conquering Goths made themselves a hero-worship, such as suited them, but accepted the terms together with the splendid rituals of the Roman religion. So the Reformation was really a new thing, and the answer thereto of Rome, the teachings of Loyola, Paracelsus Telesius, and others, was a new religion under the old name, to suit new days.

A weak feature of the book, and a serious one, as it seems to me, is the reference, occurring on the second page, and repeated on most that follow, to necessity, natural law, without, in almost all cases, any attempt to formulate the law, or to suggest the principles on which the necessity rests. The author seems to mean little, if anything, more than that in what has come to pass may be found *some* causal connection between its elements. Thus (p. 71) we read that Paul's Christianity, with its cry of 'weapons down,' was an appearance as necessary as the phenomena of nature; and that the same is true of Muhammed's religion. Again, it is insisted that it was quite according to natural laws that the Germans should succeed the Romans with different manners and culture, and with an outlook towards a higher future. Even Erigena's philosophy is a thing one could predict if the conditions were known. Such statements seem valueless without further explanation. Quite out of place, too, in view of the author's contention against Herbert Spencer's presupposition of progress in history, and against presuppositions of all kinds, is his statement that the preceding nations were mere 'Hülf-momente' towards the development of the German people.

The treatment of the age of the Reformation, especially the classification of the philosophies of that period, seems to me novel and interesting. The author has a wonderful power of grouping facts, of dividing history into periods and marking the chief movements in each—a power that makes his table of contents and the introductory chapters of each period well worth reading. Though one gets the impression that sharp criticism, such as his first volume received, is an atmosphere the author rather enjoys, one can not doubt that the work is one of conviction, as well as of great and extended, if not minute, research.

PERCY HUGHES.

COLUMBIA UNIVERSITY.

- I. *Ueber Dunkeladaptation.* H. PIPER. *Zeitsch. f. Psych. u. Physiol. d. Sinnesorgane*, 1903, Bd. 31.
- II. *Ueber die Abhängigkeit des Reizwertes leuchtender Objekte von ihrer Flächen bzw. Winkelgrösse.* H. PIPER. *Ibid.*, 1903, Bd. 32.
- III. *Ueber das Helligkeitsverhältnis monokular und binokular ausgelöster Lichtempfindungen.* H. PIPER. *Ibid.*, 1903, Bd. 32.

The course of adaptation to darkness, in a human eye previously exposed for a quarter-hour or more to diffused sunlight out of doors, is as follows: it is slow for the first eight to ten minutes, rapid for about twenty minutes, slow again for an hour or an hour and a half, and then very slow indeed until at the end of about ten hours the process is com-

plete. Different persons show two types of adaptation—one rapid and extended, the other slower and less extended. These two types of eyes do not, as Tschermak suspects, coincide with the normal and abnormal types of tri-chromatic eye (Donders, Rayleigh König and von Kries), nor yet with any classes of color-blind eye. The increase in sensibility due to adaptation, the adaptation range, varies after one hour of adaptation from 2,000 to 5,500 in different persons (that is the threshold stimulus after adaptation is $1/2000$, etc., as intense as before adaptation). This is about twice as great at the end of ten hours.

Before adaptation the threshold is the same whether one or both eyes are used, but after adaptation the binocular threshold is one half as intense as the monocular. That is, after adaptation but not before it, binocular stimuli are summed. Correspondingly the range of adaptation is twice as great when both eyes are used. (The range given above is binocular). "The adaptation of each eye is accomplished entirely independently of that of the other."

II. "The stimulus value of an object for the periphery of the adapted retina depends not merely on its intensity, but also unmistakably on the area of its retinal image, while on the other hand the light sensation from the periphery of the unadapted retina depends almost wholly on changes of the light's intensity and as good as not at all on changes in its area." The range of adaptation is therefore greater the larger the retinal image which is used in the observation.

III. This paper goes at greater length into the fact observed in I., that although for the unadapted eyes light stimuli are not summed, they are summed when the eyes are adapted. The earlier conclusion is confirmed, and an interesting discussion given of the connection between this phenomenon and Fechner's paradox.

Besides giving a host of interesting details too minute to be mentioned here, these papers supersede the earlier, less careful and by no means consonant work on the process of adaptation by Aubert, Charpentier and Treitel: and establish the important point that binocular, and adjacent monocular, stimulations are added in dark vision, but almost or quite not all in daylight vision. These facts seem indeed to point to 'a thoroughgoing independence of the apparatus for adapted vision from the daylight and color apparatus, and a considerable difference between them'; this quite in line with the observations and speculations of von Kries, Nagel, et cetera. The matter of adaptations is so closely involved in all work on optics that no one experimenting in that field can afford to neglect these discoveries of Piper.

EDWIN B. HOLT.

HARVARD UNIVERSITY.

JOURNALS AND NEW BOOKS

ARCHIV FÜR SYSTEMATISCHE PHILOSOPHIE. August, 1904. Band X., Heft 3. *Das Problem der Aussenwelt* (pp. 269-313): V. KRAFT. — The purpose here is to make the question clear. The two fun-

damental principles are: that the problem concerns the *immanent* external world; that this is, however, *existential*, and not merely the immediate object of consciousness. The concept corresponding to it is that of a *thing*. And the problem then becomes the question whether the external world is *conformity to law*, independent of a subject, or objective *being*; that is, in what sense are existential judgments possible. *Vorbedingungen einer jeden wahren philosophischen Erkenntnis* (pp. 314-317): A. LEVY. - The philosophical *ego* is not the psychological. Philosophers are born not made. *Zum Raum- und Zeitproblem* (pp. 318-337): J. FISCHER. - Objective space and time are infinitely divisible, but are not infinite. Infinite space and time are merely conceptual. Zeno's puzzle of 'Achilles and the tortoise' solved. *Das Formprinzip des Schönen* (pp. 338-394): T. A. MEYER. - Our sense of form extends beyond lines and colors to the content, overriding the distinction between direct and associative factors, and noting the purposiveness of the object. The formal beauty of poetry is not merely a matter of its channels of expression, of optics and acoustics, but of the speech faculty. This includes rhythm. The principles general to all art forms are discussed under the heads, unity, tension, and adequacy. *Jahresbericht über Erscheinungen der Soziologie, 1899-1904* (pp. 397-429): R. GOLDSCHIED. - This includes reviews of Simmel's 'Philosophie des Geldes,' Zenker's 'Die Gesellschaft, I Band,' Ratzenhofer's 'Positive Ethik,' Bergmann's 'Sociale Pädagogik,' Steinmetz's 'Der Krieg als soziologisches Problem,' Stein's 'Der Sinn des Daseins' and 'Am der Wende des Jahrhunderts.' *Die neuesten Erscheinungen auf dem Gebiete der systematischen Philosophie. Zeitschriften. Eingegangene Bücher.*

REVUE DE PHILOSOPHIE. September, 1904. *La Théorie Physique, son Objet et sa Structure* (pp. 241-263): P. DUHEM. - The English attitude treats physics as a group of models, mechanical or algebraic. This utilitarian spirit is not so fertile in discovery as is abstract theory. Poincaré's doctrine of many irreconcilable yet equally true theories about one group of facts is refuted by the systematic nature of fact. *L'Ampleur du Droit* (pp. 264-286): CH. BOUCAUD. - Logical analysis of the idea of duty shows it to mean conformity to one's destiny. Metaphysics studies the reason of being of things, physics their nature, and ethics their conformity to their reason of being. Duties are to be discovered from the ontological point of view. *La Providence et le Miracle* (pp. 287-315): G. SORTAIS. - In reply to M. Sailles' attack on the dogmas of the Church, the author urges that scientists usually deny atheism, and that science inculcates no rigid determinism which should forbid miracles. *Philosophes et Philosophie: d'après Platon* (pp. 316-326): H. GUYOT. - An appreciation of the character of the philosopher. *Analyses et Comptes Rendus*: L. Dugas, *L'Imagination*: E. P. F. Paulhan, *La Fonction de la Mémoire et le Souvenir affectif*: E. P. C. Charaux, *De la Pensée et des Éléments primitifs de la Pensée*: J. DE VISAN. F. Le Dantec, *Les Lois Naturelles*: F. MENTRÉ. F. Farjenel, *Le Peuple chinois*: G. LA MARFÉ. S. Valot, *Les Heros de Richard Wagner*:

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Nazzari, R. *Questioni preliminari ad una psicologia del genio.* Rome: Operaia Romana. 1904. 170 + 8 pp.

NOTES AND NEWS

DR. ADOLF MEYER, of the New York Pathological Institute, has been appointed professor of psychiatry in Cornell University Medical School in the place of Dr. Allan McLane Hamilton, who recently resigned.

DR. BENNO ERDMANN, professor of philosophy at the University of Bonn, who gave one of the addresses at the St. Louis Congress, celebrated the twenty-fifth anniversary of his professorate, on August 29.

DR. JAMES WARD, professor of moral philosophy and logic, at Cambridge University, gave the annual address before the Philosophical Union of the University of California, on August 26.

PROFESSOR WICKLIFFE ROSE, professor of psychology and history of education, in the University of Tennessee, has been elected Dean of the School of Education in the Peabody Normal College for Teachers, Nashville, Tenn.

THE JOURNAL OF PHILOSOPHY

PSYCHOLOGY AND SCIENTIFIC METHODS

THE PROBLEM OF PSYCHOLOGICAL DETERMINISM

THE tendency of modern psychology, in so far as it gives the problem of the freedom of the will any consideration, either directly or by implication, may safely be described as deterministic. In its aim to become a science, an exact science if possible, and to reduce its phenomena to strict uniformity for purposes of description and explanation, it has been led to account for all states of consciousness, including those termed voluntaristic, in terms of previous mental conditions. Empirical psychology will doubtless gladly leave the question of libertarianism open to ethics and metaphysics. Here it does not attempt to dogmatize, but for its own particular province the problem has ceased to be important, for it has ceased to exist. Psychology as a science should recognize nothing but a continuous stream of psychic states, which follow each other with a uniformity and necessity which find their counterpart in the causal relations of the phenomena of the physical world. This relation between states of consciousness is held to be an empirical fact, not a metaphysical hypothesis, and hence any assumption in regard to freedom passes from the realm of science to that of speculation, while, on the other hand, determinism is as self-evident in the world of spirit as it is in that of matter. The attitude of the psychologist of this way of thinking is perfectly clear. For him there can be no transcendent faculty of the will. Voluntary states are elements or tendencies in the totality of the consciousness of any given moment and, as parts, are not superior to the whole. If the total conscious state is determined, each part of it must fall under a like necessity. We can no better speak of a freedom of the will than we can of a freedom of imagination, desire or conception. Each conscious state owes its existence entirely and completely to the sum total of preceding psychic states. This is true even of those states termed attentive. Such a suggestion as that of Professor James that the voluntary effort to attend may be an original psychic force, and that freedom to will may be freedom to attend, will hardly be received by the thoroughgoing empiricist with favor. Attention is merely

one phase of a given conscious totality; is itself a product of antecedent conditions and in no way rises superior to the conscious elements of which it is a product. To make it an independent power would be to return to the old 'faculty psychology,' and make a metaphysical entity do business in a world of empirical relations.

The position above set forth may seem to have the merits of strict empiricism, and to avoid all metaphysical assumptions by resting simply on the basis of pure fact. To the writer, however, just the reverse seems true. Psychology, far from being compelled to assert determinism from the standpoint of empiricism, should hold to just the opposite. To maintain, or even tacitly to assume, that determinism is the law governing psychic phenomena, psychology must transcend its province as a science of mental life and become for the time being metaphysics, or it must abandon psychology as such and become physiology pure and simple. This assertion the following discussion aims to substantiate.

To get a clearer view of the position of psychology as deterministic we may be justified in turning our attention for a moment to the material sciences, and notice on what their deterministic assumptions are founded. The physical universe is held to be a realm of complete continuity, in which all phenomena are to be entirely explained in terms of other phenomena in such a way that an exact quantitative equivalence shall hold between the various members of the physical series. Any given occurrence is capable of being completely accounted for in terms of other occurrences, which are regarded as causes or conditions. It is true that this world of physical change is infinite and we may never be able in any given instance to find all the causes and conditions attending any particular phenomenon, but the inability is the fault merely of our powers of observation and experimentation. The causes and conditions all exist as facts of an actual or possible experience. In other words, the material universe constitutes a closed totality. There can be no additions from without, no loss from within. All natural phenomena demand for their explanation a completely continuous and self-contained series of like phenomena, quantitatively measurable and reducible to an ultimately common description. Physical necessity is based on the assumption that the cause of any given event in the realm of matter is to be found only within the physical universe.

"Physical science," says Stout, "has shown the thoroughgoing and continuous interconnection of all material events as a part of a single mechanical system. There is nowhere any room within the mechanical series for the interposition of conditions which are not mechanical." This conception of natural science makes it essentially deterministic, not merely because there is a uniform sequence

of phenomena, but also because there is held to exist an exact equivalence of relation between all causally connected phenomena. This assumption is not metaphysical, but empirical, for although not completely demonstrated, the relation assumed to exist is one that is within the world of possible experience—all phenomena of the physical universe are to be explained in terms of themselves.

Now when we turn our attention to the psychical world do we find the same conditions as those which prevail in the physical? If we are misled by analogies we may at first answer this question in the affirmative. Stout holds that 'the present conscious process is throughout conditioned by the past conscious process.' James asserts that 'states of consciousness are all that psychology needs to do her work with.' Conscious phenomena are generally spoken of as constituting a continuum, and psychology attempts to formulate laws which govern the relation between various conscious phenomena. If we mean by the continuity of consciousness simply that the present state as conscious is not absolutely separated from that which has gone before, and that the 'now' is modified by the preceding conscious moment, that 'the changes from one moment to another in the *quality* (italics mine) of consciousness are never absolutely abrupt,'¹ such a continuum can never be denied. Indeed, it is the revelation of immediate experience, and to doubt it would be to doubt consciousness itself. Without it all mental life would cease, and we would be reduced to psychological atomism. If, however, we mean by psychical continuity to designate such a relation as that which science assumes to exist in the physical world, we will at once be met with a serious difficulty. This a further examination of the concept of physical continuity will make evident.

In the first place, all physical phenomena are interrelated. There is no one part of the Cosmos which is not in intimate union with all other parts, but in the psychical universe each individual is a monad, standing in metaphysical isolation from all other individuals as far as his conscious life is concerned. His psychical activity must begin and end with his individuality. We get in the world of consciousness numbers of psychic entities that have no direct connection through purely psychic processes with other psychic entities. The consciousness of *A* can not pass over into the consciousness of *B*.

Again, no conscious process in a given individual can be entirely explained by previous conscious processes. There is always an element of newness and unexpectedness in each moment of our mental life, even when the train of thought is logical. This element becomes more pronounced in our ordinary loose processes of thinking.

Again, when a conscious state is suddenly broken in upon by a

¹ Quoted from James, 'The Principles of Psychology.'

sensation, the resulting conscious state is not to be deduced from anything that has gone before. Of course, we can agree with Professor James that between the consciousness of silence and that of a thunder-clap immediately following there is a relation in which there is an awareness of the preceding state and a contrast with the following, but the continuity that exists is not one which finds in the former the existence of the latter. The incoming state can not be accounted for in terms that do not transcend its consciousness. But if in the physical world we could find an event that was so thrust in from the outside, we would be obliged at once to give up our belief in the absolute continuity of this world as phenomena, and hence in the determinism of all its parts.

Finally, even if we could find in the life of the normal, adult, human being a continuity of his mental states as absolute as that which exists in the world without, this continuity would be set within narrow limits. It could not extend back before birth nor continue out beyond death. It appears and disappears absolutely as far as empirical psychology is concerned. Its existence before birth and after death is a matter for metaphysics to discuss, not for science to assume. Mental continuity, then, empirically considered, is but for a brief time, while the continuity of physical phenomena exists throughout all time.

It is quite evident, then, that when we consider consciousness by itself it presents many lacunae. It may be replied that natural phenomena, too, have gaps. On this point Wundt holds that generally we are more ready to assume breaks in the psychic series, because our subjective experience acquaints us with such breaks. This is the case, however, only because we hold to the principle of absolutely continuous physical laws, and hence fill out the wanting parts in the series of natural phenomena. The facts considered without such presuppositions make it doubtful if there are more gaps in the psychical than in the physical series. Be this as it may, it is to be noticed that the lacking elements supplied in the physical series are phenomena of the same character as those actually present, and entirely within the realm of possible experience, while the psychic series can be made continuous only either by introducing phenomena from an entirely different world, or by transcending the realm of known phenomena and passing over into the world of things-in-themselves. This the following discussion will point out.

In attempting to piece out the conscious continuum two means are at hand for the empirical psychologist, neither of which, however, he should be willing to employ. The one reduces psychology to physiology by assuming a physiological origin for all conscious states, and the other passes over into the realm of things-in-them-

selves by setting up the hypothesis of subconscious and unconscious mental states.

The physiological road many of our leading psychologists rightly refuse to travel.

"If the course of mental events is not regulated by discoverable uniformities capable of being interconnected so as to form a coherent system, the psychologist has nothing to do. It is incorrect to say that on this assumption his science becomes absorbed in physiology. It does not become absorbed; it simply ceases to exist in any form whatever." (Stout.)

"Psychology," says Titchener, "deals with none but mental processes." With this point of view Wundt is also in accord. He holds that not the remotest account of the psychological development of our ideas is given when we refer the psychical synthesis to physical cause. Münsterberg asserts that the brain excitations are never the object of psychology. The real value and meaning of conscious life vanishes when we attempt to account for it in physiological terms.

The psychologist who thus seeks the aid of physiology has not only abandoned psychology as such, but he has plunged himself into metaphysical difficulties as well if he attempts to give any idea of the relationship between mind and body, which his hypothesis demands. Whether he be an automatist or an interactionist, he is at the same time a metaphysician and not an empiricist.

To avoid the difficulties set forth above many psychologists are willing to adopt the hypothesis of parallelism in one of its various forms, and to accept the existence of the subconscious and unconscious in mental life. It is true that all are not willing to agree to this view. "Unconscious psychic phenomena," says Münsterberg, "do not exist." And Wundt declares that the assumption is something with which psychology has nothing to do. Stout, however, believes that unconscious links must be supplied for conscious processes, and Sully says, "If we attempt to account for psychical phenomena solely by means of psychical processes we seem almost compelled to resort to their unconscious operation." Paulsen writes,² "Are psychical processes always conscious processes, or are there also unconscious elements in psychical life? As far as I can see, no psychology can help but affirm the latter question; it must be confessed that the conscious elements make up but a small portion of psychic life."

It is not the purpose in the narrow limits of this paper to contend for the truth or falsity of this assumption, but simply to point out that the hypothesis in question is metaphysical and not empirical.

² 'Introduction to Philosophy,' tr. by Thilly, pp. 120-121.

All postulates of science should be within the realm, not indeed of actual, but of possible experience. The ultimate constitution of matter has never indeed been empirically discovered, but the atomic theory, and others of a like nature, are, as Strong points out, not beyond the possibility of actual observation; but an unconscious mental state can never be experienced either in the individual possessing it or in another. When it is experienced it has ceased to be unconscious. Not only can it never be experienced; it can further never be set forth in terms of any imagined experience. We can conceive consciousness only as we possess it ourselves. Paulsen attempts to escape the difficulty involved, in conceiving an unconscious mental state not as 'an absolutely non-conscious, but only a less conscious state, a conscious state that is perhaps completely imperceptible.' Passing over the difficulty of what a completely imperceptible conscious state may be in terms of mental life, we are confronted with the question as to what constitutes the nature of the less-conscious, if that is what we are to understand by the term sub-conscious. Does its reality exist in its consciousness, or in its lack of consciousness? Clearly, as far as it is known, in the former, and yet the subconscious is supposed to be effective in the mental series, in part at least, in that element which it possesses that is not conscious. To use the term partly conscious or confusedly conscious will not help us. We know it only as conscious; the non-conscious element must remain forever a negative concept.

Admitting, however, for the sake of argument the legitimacy of the conception of the subconscious in empirical psychology, we are by no means out of our difficulty. The subconscious, or partly conscious, is not sufficient to bridge all the gaps in the conscious continuum. It may account for our organic feelings for example, but it can not explain memory, and certainly not sensation on the psychic side. Here we must either resort to physiology, or assume mental states that are absolutely non-conscious as far as the individual is concerned. Such states are clearly unknown and unknowable, according to any meaning which we can attach to the term knowledge. They are the transcendent *X*, the absolute thing-in-itself, the legitimacy of which may be questioned in metaphysics, and which certainly can find no place in empirical science. "For psychology," says Wundt, "the unconscious is a transcendent concept."

We now come to the final question of this discussion. Can empirical psychology, as mere psychology, hold to a determinism which owes its existence either to metaphysical hypothesis or to a physiological interpretation of the mental life. The answer must be decidedly in the negative. Consciousness as such presents a multiplicity of states that, while related, are incapable of being joined

in an absolutely continuous series in which every part is related to every other in terms of a quantitative equivalence. If you take away these two conceptions of continuity and quantitative equivalence you have nothing left of the notion of determinism from the empirical standpoint. Necessity demands that between phenomena shall exist not mere uniformity of sequence, but also a necessary bond. This necessary bond, as far as science knows it, is expressed in terms of equivalence. *The effect must equal the cause.* There may of course be a metaphysical notion of necessity as there is of freedom, but with this psychology as a science has nothing to do. The laws that govern its phenomena, as far as it knows them, are those of the mental life, in which efficient causality is replaced by final causality, in which relations of quantitative equivalence are replaced by those of worth. We are no longer in the world of mechanical necessity, but in the realm of values. The most significant fact of consciousness is that it chooses, and its clearest act of choice is found in its voluntary states.

Empirical psychology then must affirm the freedom of the will. It may leave to metaphysics the ultimate question of freedom and determinism, but for itself as psychology it knows no mechanical necessity. Man may be metaphysically determined; he is empirically free.

STEPHEN S. COLVIN.

UNIVERSITY OF ILLINOIS.

THE LAW OF CONGRUOUSNESS AND ITS LOGICAL APPLICATION TO DYNAMIC REALISM

IN recent articles by Professors Tawney, and Bawden, we have had illuminating discussions of utilitarian epistemology and pragmatic methodology.¹ It is possible that some of those commonly classed as pragmatists would repudiate the term, nevertheless tendencies other than that specifically indicated by this much-abused term are so closely bound up with it that the sympathetic energetic and objectivizing movement forms a very genuine bond. If the present paper seems to magnify differences, it is certainly not because the writer fails to appreciate the points held in common by 'pragmatic,' 'genetic' and 'dynamic' thinkers.

Utilitarian epistemology seems to be content with the conception that 'the laws of matter and of life are the laws of our needs.' To this all may agree whether utilitarians or not. But it is a violent

¹THE JOURNAL OF PHILOSOPHY, PSYCHOLOGY AND SCIENTIFIC METHODS, Vol. I., Nos. 13 and 16.

wrench, alike to logic and common sense, to take the further step, and declare that the laws of matter and of life are what they are *because of our needs*. The appeal to biology is unwarrantable here. What biology and physics suggest is rather that you and I and the universe have grown up together in reciprocal relation. It is, in a sense, true that the universe (as I perceive it) corresponds to my needs, but this is an egocentric and psychological view. As a philosopher I recognize that I am what I am in response to the needs of the universe, and the universe is bigger than I. It is true that the stone attracts the earth and molds its figure and determines its weight to an extent proportional to the respective masses of the two bodies, but this is wholly overshadowed by the influence of the earth on the stone.

Now what we mean by dynamic realism stands for the view that all parts of the universe are reciprocally bound together because they act together and have grown to be what they are in organic unity of development. Pragmatism is then justifiable in so far as it refers to a methodological concept. That things do work together and our needs are satisfied when a certain set of postulates are conformed to, is, in so far forth, evidence of the correctness of the postulates, but this is only evidence that by this means we have discovered a part of the organic harmony covered by the law of congruousness. The theory is not true *because* it satisfies our needs, but the fact that it satisfies our needs *is evidence* that the theory fits into the organism.²

Realism is not satisfied with one aspect only of being, but accepts the fact of reaction as evidence of the *other* by the reaction of which with self realization becomes possible. In what follows a few logical preliminaries are set in organic relation without expecting to add anything to the content of our thought. To the objection that reference to recent logical discussions is wanting we have always, for want of a better, the reply of the Musselman who destroys all books but the Koran.

First, then, as to the law of cause and effect. The naïve mind recognizes that certain causes produce certain effects, and that is all there is about it. If interrogated as to how he knows that one event causes another, he will appeal to uniformity in sequence. The cause invariably preceded the effect. But a little reflection reveals the fallacy of *post hoc, ergo propter hoc*. In a shooting-gallery, a deer, a camel, a dog and several ducks follow each other across the field of view in unvarying succession. The dog is not the cause

² With regard to current pragmatism, Professor Tawney well says: "Facts, meanings, and needs are abstractions from concrete experience . . . they develop together by a law of their own activity," *l. c.*, p. 344.

of the deer. The running of the dog is not the cause of the running of the deer. They are related by a common bond to an endless chain which moves and imparts its motion to them both alike. But the movement of the chain is due to that of a sprocket wheel set in motion by the explosion of gasoline in a suitable engine. The boy who first sees the bowing trees and then feels the wind, fancies that the trees produce the wind.

An attempt at a scientific theory of causation catches at the analogy of the endless chain. All the activities in this world have their coherence in one common organic unity. One part is necessarily related to every other, and one or other of two events may be looked upon as cause or effect at will. Although, to man, experience becomes a succession of events, we know that this is not so, but that there is a continuous whole of activity. We, it is true, catch only the occasional flash of the lightning, but we know that the electric discharge which it intermittently reveals to us is a continuous process. So of all reality; it is a part of a continuous whole, one part is not possible without all. The geometry of loci admits of no hiatus in the trajectory of its forces.

Our minds fill out the observed intervals in experience, not by interpolating in them the intervening modes, which, not having been in experience, can not be known, but by postulating a *nexus* which we term cause. The term is practically useful but it is philosophically faulty if not false.

If by one event causing another we mean that the existence of the one event prior to and contiguous to the second is sufficient reason for the second event, which then follows as a matter of course therefrom, the concept is undoubtedly false. Out of the continuous stream of organically connected reality we catch glimpses of two elements, but one is no more cause of the other than the dog was the cause of the deer in the gallery.

What actually occurs is more as though, in watching an intermittently luminous electric discharge, we establish point after point in the course until we have interpolated elements enough to protract the curve of the constant-flowing discharge, itself not visible to us. We have plotted a curve of nature's uniformity and established the form of a part of the path of reality. Such is the work of science. Gradually a considerable part of some subordinate chain of events becomes filled in by our plotting, and a formula or 'law' for the observed uniformity is discovered. Within these limits, we say, the laws of cause and effect have been laid down. There is no objection to such use if we know exactly what is meant.

Even in logic, the convertibility of these terms is indicated by the expression, 'final cause,' where we mean the *effect designed to*

be produced. This usage is as true (and as false) as the other. The last portion of the trajectory exists as much for the first as the first does for the last.³

The practical mind becomes very impatient of such generalizations. A miner drills four six-foot holes in a shaft, and charges each of them with two sticks of giant powder, and places in each a fuse properly tamped, ending in a primer of detonating material. He connects the several fuses with wires, and the opposite ends of these wires are placed in the circuit of a powerful battery. After all precautions are taken, the circuit is closed, a current of electricity passes through the wires and in the primer meets resistance sufficient to produce heat, causing the primer to detonate with such violence as to explode the powder, and thus to break down several hundred pounds of quartz. What caused the breaking of the ore? None of the elements enumerated could have been omitted. All were part of a plan existing in the mind of the miner, but all were related to each other in chains of observed sequence. Any failure properly to comprehend these attributes (activities) of the materials used would have prevented the success of the operation.

We discover certain relations and avail ourselves of them, and then describe the uniformity we discover as a causal relation. It must also be observed that all so-called causal relation is reciprocal. One activity, x , may come into relation with various others, a , b and c , and the resultant is neither x nor a , b or c , nor yet a constant modification of x that could be represented by ax , bx or cx ; it is rather a series of new activities, p , q and r . In other words, cause implies two activities and the result is something different from either.

This is not the usual form of describing cause, but a little reflection will prove it correct. All cause implies change and the elements of causation are dynamic. But change involves comparison, and less than two elements can not be compared.

All causal relation we said is reciprocal. It matters not whether the clapper strikes the bell, or the bell moves and strikes the clapper, or rather, in either case, both clapper and bell strike each other. The result, we say, is sound, but the result is also various other things quite as truly. A myriad molecular changes wrought into the inextricable fabric of reality stand in relation to the impact of bell and clapper.

One great difficulty in getting any clear idea of cause and effect is that there is no such thing as an example of simple cause and effect, and this betrays the falsity of the usual conception. A ball thrown against a wall rebounds at an angle of deflection determined

³ Cf. Underhill, *Mind*, April, 1904.

by the angle of incidence. The wall diverted the ball, caused its change of course. What the wall did was to add a large number more to the already innumerable factors in the formula for the trajectory of the ball. One of the 'results' is expressed in conformity to a uniformity observed in nature which we call a law. Others we fail to observe or to estimate. What was the cause in this illustration, let us say of the change in the course of the ball? Was it the impenetrability of the wall, the elasticity of the ball, the particular angle in which the wall stood to the path of incidence of the ball, or the inertia or velocity of the latter?

It was long supposed that influence passes, in causation, from one thing to another, but this idea of an *influx physicus* has been given up as adding nothing new but difficulties. To say that one thing becomes an occasion for another is equally unintelligible.

Many first-rank philosophers (*e. g.*, Lotze) have abandoned the attempt to define causation, while admitting that it is a necessary postulate. It may be permitted to us to go further and suggest that causation as such can not be defined because it does not exist in the form of a plurality of causes. What does exist is such an indissoluble linking together of all realities in fixed relations as makes of the whole a complete organism, every part being implicate in every other. The complete organism is the 'ground' of all being, and is the only thinkable cause.

Our daily praxis discovers small segments of this continuity and reveals fixed relations therein, and, forthwith, describes a certain group as a necessary prior, or cause, of a certain other group of events. Our attempted interpretation of causation, while it relieves us from the responsibility of explaining every uniformity in phenomena by some special cause, or of evoking some inexplicable power or modulus or property of being as a general cause, does suggest two alternatives in our conception of the 'ground' of reality. These alternatives are somewhat as follows:

First. The world is something created in all of its varied complexity and set in motion by an infinite creative force, and what followed the creative act is the self-explanatory out-working of the mechanism. If we know what God knows and as completely as he knows, we could predict every occurrence as we now predict eclipses.

Second. The world is not a machine but is itself instinct with power, and all its parts fit because they grew together and belong together. If our knowledge were complete enough we could predict all that has been or is to be from the part which each element has in an organized whole.

The first of these statements is the doctrine of transcendence and the second that of immanence, or a better distinction is that which we

have used between mechanism and organism. In arriving at a satisfactory settlement, or in making a selection between the two, it is necessary to notice that what was called self-explanatory in the case of mechanism is by no means so. No matter how complete the mechanism and no matter how great the power imparted to it, it is not self-evident that the course it would pursue must be one rather than another. The mechanism must be perfectly adjusted, its materials must have certain properties, its forms must conform to certain adaptive imperatives, and all these characteristics belonged to the mechanism from all time and so could not be created, or else creative power has been added to it from some source. This can only be from the creator himself, for the world is supposed by definition to include all else. Thus the creator has added of himself to the world in creating it. Again, if power be applied in launching forth the universe, it must come from the world or from the creator. If derived from the creator (all other sources being excluded) this idea also means that the creator puts himself into his universe. But this destroys the idea of mechanism and gives us organism.

But, to defend at least the associated idea of transcendence, we may say, 'Yes; but not all of the creator is in our universe.' The reply is, that, by definition, the universe is all. A creator not creating is no longer a creator, and if he be creating, that created becomes, *ipse facto*, our universe, for a universe does not exist divided against itself. But certainly, it is objected, we can not understand that all of God is immanent in his creation. No; only that all of God as creator is in his creation, and that to speak of a world created by his will and preserved by his power is to admit that creation is perpetual and continuous. That there may be other activities besides creation may be admitted, but the prayer, for example, 'Create in me a clean heart, O Lord' may suggest that there are numerous spheres of creative activity aside from those in which our cosmology is wont to find its orbit.

The world then may be described as an organism in which human beings live and move and, in common with all other existences, find their being. It is no accident that part fits with part any more than it is that the innumerable cells of the body cooperate in an organic unity and each bears the impress of the whole.

If one wishes to call the tie that so binds the universe together 'cause,' there is little objection. We may call gravitation the cause which insures the movement of the planets in their orbits, but we may be sure that when we fully understand the mysterious law of gravitation it will not be possible to dismember it from the organic whole of universal causation.

Thus far we have availed ourselves of metaphysical license in

treating of universal and absolute qualities as though we understood them. We must remember, however, that they are creations of our mind; necessary creations, it may be, but not elements of knowledge.

If we were called upon, and were able, at this point, to make a satisfactory definition of knowledge, our quest would end and the remainder of this inquiry would become unnecessary. For the present we may say that knowing is the appreciation of changes in experience in definite relation to each other and to the perceiving self. Knowledge refers both to the act (cognition) and content of knowing.⁴

Knowing lies at the base of all voluntary action. In all the Germanic languages the roots of the verbs 'to know' and 'to do' are similar or identical, *i. e.*, knowledge is power. Recently psychology has emphasized, perhaps extravagantly, the correlated fact that there must be an act of will in all knowing. In fact all expressions of subjectivity must be voluntary, otherwise they are not subjective.

We have defined reality as the union of subjective and objective, but this implies a curious fact, *viz.*, that we do not know things as they are. Our realities are of our own making. Thinking is, as has been said, 'thing-ing it.' Things are not known as such but are inferences. Experience is the known, all else is inferred. The correctness of our knowledge will depend, first, on the uniformity of relation between experience and the objective reality; secondly, on the completeness of experience; and thirdly, on the certainty of our methods of inference.

Experience is the product of a reaction from without upon our sensorium, the latter reflecting in consciousness. If the experience arise from a light-wave, for example, we must, first, assume that when a wave of certain form, periodicity and velocity reacts upon the mind, it represents uniformly a definite objective validity, or is such validity. It is presumed to have definite correspondences and differences (relations) when compared with other objective phenomena. Secondly, we receive the impression through the medium

⁴Very often knowledge is defined as though it were simply that known, but this is only a portion of the extension of the term. Knowledge is, philosophically, the process of knowing and the content of the process. It has been defined as 'a representation of facts in sentient symbols' (Carus), 'a description of facts' (Kirchhoff). The latter use applies to stored knowledge in books or traditional information and the like, a sort of mental conserves. 'All knowledge on its subjective side is belief. To know a truth is to be assured of it. What the term knowledge implies more than belief is an objective fact, namely the adjustment and conformity of belief to reality or truth' (Sully). 'Activity is a fundamental property in conscious life' (Hoeffding).

of delicate sensory apparatus (eyes, etc.), and each particular wave length is conveyed along certain nerve channels to points in the brain identical with the receptive points in the retina, so that this particular wave length (color) is discriminated each time it occurs. The accuracy of perception depends upon the perfection of this mechanism. But the mechanism is both imperfect and incomplete. We have no organ for perceiving ultra-violet or X-rays. We even perceive differences between colors very imperfectly—we are all more or less color blind—and, at best, very few out of the indefinite series of wave lengths and periods and forms are at all perceptible. This limitation is necessary in order that we should analyze at all. The correspondence between the internal and external is very incomplete and only partially accurate. Thirdly, our methods of inference are such as are based on correspondences in *time*, *space* and *mode*. Time Kant defines as the necessary 'form' of our inner apprehension, as space is that of outer experience, *i. e.*, our own apprehension of our own acts must be in a relation of sequence, and our apprehension of experiences through the senses necessarily is referred in terms of extension. Mode refers to differences in kind resulting from analysis within our sensorium. Consciousness is differently affected by vibrations of different length and period, not because of any special reason why vibrations of one periodicity should produce one sensation rather than another, but because correspondences and interferences between the nodes of the stimulus curve and the complex curve of our vital organism vary with variations in the form of either trajectory.

Thus it is evident that all of the three necessary 'forms' of knowledge of external realities are of subjective nature and dependent upon the structure of the organ and, it may be, upon necessities of thought. Moreover, nothing is more certain than that none of these represents an external reality as such. Time, as time, has no existence apart from experience. To an infinite being time and space would be other than they are to us, if they could be supposed to exist at all. Mathematicians threaten us with the destruction of spatial relations, as we know them, by the introduction of a fourth dimension. Mode is valid for us, and it is necessary for the individual to determine its correspondence with the experience of other individuals before it can be assumed to be valid for them. This correspondence is the basis of all communication but it is only approximate. What I see and hear is not identical with what you see and hear under identical external conditions. If you are color blind and I have no ear for music, the difference is still more apparent, but is not more real.

The first limitation on knowledge, then, is its relativity, the

second its incompleteness, the third its errancy or uncertainty. We find ourselves, as thinkers, in a bad way. In the first place, we have no direct assurance that the knowledge we seem to have is a correct picture of reality; in fact, we know that it is not. We believe it to have only such constant correspondences to it as may serve our practical purposes. Secondly, the picture we do have is like a coarse newspaper, half-tone, only a few points here and there are left to represent the infinite variety of light and shade in the original. Thirdly, using the same illustration, much of the objective reality was out of focus in our organism, and the print (reproduction) is so roughly made that many of the original distinctions are obliterated. We are to be congratulated that there remain enough elements of correspondence so that I can recognize it, and that my description of it can frequently be recognized by my neighbor when compared with his own mental image of the same phenomena.

Subjective idealism (Fichte) recognizing these limitations of knowledge, states that the perception of the world is simply the product of our creative faculty and that, outside of the cognitive spirit, this world of things has no existence, so that there is no such thing as an act of cognition, but only an act of representation.

But, without denying the subjectivity of cognition, we are helped by our discussion of organism to the conclusion that, since we and our cognitive apparatus are organic parts of the cosmos and have grown out of it, or rather, have grown in it, that which our cognition invariably does must have an invariable relation to what invariably is. It would be strange if this particular branch of the cosmic organism should bear fruit that would spring up into no likeness with the parent stem, however limited, however imperfect these correspondences may be. We are forced to believe that, so far as they do go, and with whatever accuracy they do act, our cognitive activities express fundamental correspondences with external validity. They are facts of experience and not phantasies.

Only on such assumption as this is science possible, and without it we might fail to find the inducement to carry out the obligations of daily life. To such conclusion as this Kant came in his practical reason after passing half a lifetime in the cheerless realm of pure reason, but it is not necessary to divorce pure reason from half (and the better half) of its necessities in attempting to follow out the other half to the logical conclusion. One would not wish to dwell forever on the cold side of the moon.

C. L. HERRICK.

SOCORRO, NEW MEXICO.

DISCUSSION

IMAGE OR SENSATION

DR. GORE¹ has suggested that the distinction between the image and the sensation is one between different stages of abstraction. At the extreme end of this process lies the so-called pure sensation, at the other end lies the object within which the elements represented by the sensation and the image are both present; and on the line between these we have varying degrees. "The more he (the psychologist) seeks to isolate a phase of consciousness, to dissect it out of its context, to expose its true and pure essence, the more clearly does the sensational quality appear."² But Dr. Gore not only presents the sensation as the limit toward which psychological analysis moves, but also suggests its functional value. "If it be true that the sensational quality characterizes the more isolated phases of any experience, then it is clear that it locates the more discrepant and problematic features of a given situation. The discrepant and problematic features so located by sensation are isolated, not in the sense of being irrelevant, but in the sense of standing over against some desired or customary activity. They are obstacles in one form or another. Hence, they have all of the felt reality, all of the immediate presence, which goes with the sensational quality. It is an *organic* break or strain that comes to consciousness in the imperative form of a sensation."³ Now this suggests at once Professor Dewey's definition of the sensation in functional terms: "Sensation as a stimulus does not mean any particular psychical *existence*. It means simply a function, and will have its value shift according to the special work requiring to be done. At one moment the various activities of reaching and withdrawing will be the sensation, because they are that phase of the activity which sets the problem, or creates the demand for the next act. At the next moment the previous act of seeing will furnish the sensation, being, in turn, that phase of the activity which sets the pace upon which depends further action. Generalized, sensation as stimulus is always that phase of activity requiring to be defined in order that a coordination may be completed."⁴ Professor Dewey is here discussing the conception of stimulus immediately, rather than that of sensation, but the discussion leads up to this functional definition of sensation, which is evidently identical with that which Dr. Gore has in mind.

¹THE JOURNAL OF PHILOSOPHY, PSYCHOLOGY AND SCIENTIFIC METHODS, No. 16, p. 434.

²*I. c.*, 436.

³*I. c.*, 437.

⁴'The Reflex Arc Concept in Psychology,' *Psychological Review*, Vol. III.

Dr. Gore's definition of the image is as follows: "The image is the content abstracted from past experiences in the form in which they are usually brought to consciousness to serve as means of dealing with problematic features located by sensations. At the same time, this abstracted content has a perceptual or ideational setting which helps to constitute it as an image. . . . Could you rule out the ideational or perceptual setting, your image would leave off being an image. It would become sensational in quality and value."⁵ The image, functionally defined, is then a content which in terms of past experience has served as a solution of the problem set in the form of the sensation. Except that this statement implies that the image is but one of the solutions involved in past experience in the presence of such problems as those implied in the sensations, it would correspond to the functional definition which Professor Dewey gives for the 'response.' "Just as the discovery of the sensation marks the establishing of the problem, so the constitution of the response marks the solution of this problem. At one time, fixing attention, holding the eye fixed, upon seeing and thus bringing out a certain quale of light is the response, because that is the particular act called for just then; at another time, the movement of the arm away from the light is the response. There is nothing in itself which may be labelled response. That one certain set of sensory quales should be marked off by themselves as 'motion' and put in antithesis to such sensory quales as those of color, sound and contact, as legitimate claimants to the title of sensation, is wholly inexplicable unless we keep the difference of function in view. It is the eye and the ear sensations which fix for us the problem; which report to us the conditions which have to be met if the coordination is to be successfully completed; and just the moment we need to know about our movements to get an adequate report, just that moment, motion miraculously (from the ordinary standpoint) ceases to be motion and becomes 'muscular sensation.' On the other hand, take the change in the values of experience, the transformation of sensory quales. Whether this change will or will not be interpreted as movement, whether or not any consciousness of movement will arise, will depend upon whether the change is satisfactory, whether or not it is regarded as a harmonious development of a coordination, or whether the change is regarded as simply a means in solving a problem, an instrument in reaching a more satisfactory coordination. So long as our experience runs smoothly we are no more conscious of motion as motion than we are of this or that color or sound by itself. To sum up: the distinction of sensation and movement as stimulus and response respectively is not a distinction which can

⁵ *I. c.*, 437-8.

be regarded as descriptive of physical events or existences as such. The only event to which the terms stimulus and response can be descriptively applied are to minor acts serving by their respective positions to the maintenance of some organized coordination. The conscious stimulus or sensation, and the conscious response or motion, have a special genesis or motivation, and a special end or function."⁶

In this statement of Professor Dewey's there is no especial effort to define or, indeed, locate, the image. The interest gathers entirely around the conceptions of stimulus and response as the elements that make up the so-called reflex-arc. However it is evident that a statement that does define sensation in functional terms and response as well, must have a place in it for so vital a concept as the image. To return now to Dr. Gore's definition, we recall that it is expressed in terms of the response of a past experience to such a problem as this sensation represents. In any case Dr. Gore assumes that the image is to be found on the response side of the coordination. The possibility that suggests itself within such a situation as that which Professor Dewey describes, besides the stimulus-sensation and the response-movement, is the series of inhibited responses which are involved in the fact that the situation is a problematic one. There are present tendencies to conflicting activities which, instead of being executed, mutually check each other. Besides these checked tendencies there are the tentative efforts to solve the problem which may arise as hypotheses, so to speak. An instance of these may be found in the familiar efforts to recall a name. Besides the inhibited efforts to speak the name, which register themselves in the form that Professor James calls the fringe surrounding the aching void, there are the successive names that arise, one after the other, perhaps only to be rejected. Now these names, arising in this fashion, are typical instances of images as that term is customarily used in psychology. They distinguish themselves from the sensation or sensuous content in that this sensuous content is something that is more or less definitely defined as a feel of some sort—auditory, visual or kinæsthetic—which is the core, so to speak, of the image. In Professor Dewey's terminology it is the condition of the solution of the problem, or in Professor James's it is the feel of the void, or rather of its boundaries through which shoot the trial efforts.

Another typical situation within which the image arises is that given in the concept. Some sort of image with sensuous content it is admitted must accompany any concept however abstract this may be, but in this situation, as distinguished from that just defined above, the image phase is of relatively little importance. The

difference in the image in these two situations is, functionally, readily explained. In the first case, the completion of the process of recognition is dependent upon a sensuous presentation of a certain content. The act can not take place until the sensuously constituted stimulus is integrated. The actual face of the person whom one is trying to remember, or the actual articulation of the sought-for word, is requisite to the recognition. In the case of the concept, on the contrary, the cognitive process is carried out by an already organized response for which the sensuous integration of the image is unnecessary—or is necessary only if the concept is held by itself apart from the experience which it interprets, in which case the image is but the surrogate of the object. Between these two extremes lies the so-called process of perception, with the image in varying degrees, as the cognitive act is of the nature of sensuous recognition or of conceptual interpretation. I will discuss later the nature of the structure of the image, especially from the point of view of the Wundt-Stout concept of disposition.

GEO. H. MEAD.

THE UNIVERSITY OF CHICAGO.

REVIEWS AND ABSTRACTS OF LITERATURE

Zur Ethik des Gesamtwillens. Eine socialphilosophische Untersuchung.
 RUDOLF GOLDSCHIED. Erster Band. Leipzig, O. R. Reisland, 1902.
 552 pp.

The title of this rather bulky volume gives no very clear indication of its contents. Only the latter part of the book is concerned directly with the ethics of the collective will, but preliminary to this is a lengthy discussion of the relation between mind and body, and of the origin of the categorical imperative, followed by a polemic against the theistic view of the world with special reference to the alleged shortcomings of Protestant and Roman Catholic theology and the inconsistencies of the state church in Germany. The chapters directly referred to by the title contain an arraignment of modern political institutions, especially as found in Germany, and a plea for their modification in the direction of an international socialism.

Such unity as the book possesses is due to the author's philosophical system, which is based upon the 'empirocriticism' of Avenarius. It is an attempt to unite the Kantian theory of knowledge and ethics with the standpoint of materialistic evolution. The result reached is a monism of mind and body which is opposed alike to the dominant theory of parallelism and to that of interaction. The main argument against theology is that it is dualistic and does not accept the monistic theory of mind and body; while the parallelistic cleft between mind and body, it is

hinted, is responsible for that between theory and practice, and so underlies the inconsistencies of a statecraft which teaches altruism through an established church, and yet in war and commerce practices individualism.

The defense and exposition of the Avenarian theory will be more interesting to the philosophical reader than the somewhat remote applications made of it in the spheres of religion and politics. Ethics, it is held, must rest upon psychology, and psychology can only advance with the progress of its two members, physiology and theory of knowledge. If psychology is to be a science, it must trace the causes of mental activities, and it is not enough to resolve complex processes into their simpler elements; these in turn must be referred to their physiological conditions. The position is maintained that mental processes are immediately dependent in a one-sided way upon the central nervous system. To defend this view from the charge of materialism recourse is had to an idealistic theory of knowledge which declares that body and brain exist only as mental representations, the causes of which are, and must remain unknown. It then becomes necessary to harmonize the two apparently irreconcilable propositions that spirit is a product of nature and that nature is a product of our spirit, and only one way is open to an 'exact psychology,'—to conceive nature and spirit, or mind and body, as a unity. This conclusion is negatively supported by a critique of parallelism, which separates what is united in experience, and of interactionism, which occupies the standpoint of a pre-Kantian dualism and is in conflict with the law of the conservation of energy. The monistic view, it is further declared, is not metaphysical, but is based solely upon pure or immediate experience.

Objection may easily be made to this solution of the psychophysical problem, but it has dialectically much to commend it. A monism which can assert indifferently that mind is a product of matter, that matter is a product of mind, and that the two are one and the same, has the obvious advantage that if one part of the system be attacked its defender can retire to another. The author is enabled virtually to assert the mutual dependence of mind and body against the parallelists, and to deny it against the interactionists. Mind and body are two when the author wishes to show that the psychical can only be explained by the physical; they are one when he wishes to avoid the difficulties of parallelism and interaction. The outcome of this way of looking at the problem is a confusing *communicatio idiomatum*, an excuse for which is sought in the relativity of our knowledge (p. 31), but relativity should hardly be used to cover logical inconsistencies.

The difficulties of combining Kantian idealism with a materialistic psychology which asserts the complete dependence of mind upon brain, multiply as the argument proceeds. To say, in general, that a part of consciousness, the idea (*Vorstellung*) of the brain, is the seat of the whole is, the author admits, absurd (p. 39), and he appeals to the knowledge we have of our fellow men. But here again we are met with the absurdity equally apparent of saying that my idea of my fellow man's brain is the seat of his consciousness. If, however, we mean by brain in this case the cause of my idea, we are trespassing upon the forbidden ground of meta-

physics, for 'from the contents of an idea (*Vorstellung*) nothing can be concluded as to its cause' (p. 39). The author, of course, sees the difficulty here, but thinks that the two-fold progress of physiology and of theory of knowledge has placed us in a 'circle' from which, in the nature of the case, there can be no escape.

Doubt may be suggested as to whether the Avenarian theory of 'pure experience,' at least as expounded in the present volume, really remains upon the ground of 'pure experience.' The binding together of consciousness and brain activity, whether in the form of mutual dependence, of one-sided dependence, of mere concomitance or of identity, is at best only an inference—not a matter of 'immediate experience.' I have, as is admitted, no immediate experience of the peculiar molecular activities of my own brain which are associated with consciousness, nor, when appeal is made, as it is (p. 40), to my fellow man, have I any immediate experience of his consciousness—supposing his brain to be open to observation. Ruling out telepathy, which is not here in question, I can only infer consciousness from observed bodily movements. A certain relation between mind and brain may be legitimately inferred, but as soon as we assert this relation, we have already left the ground of 'immediate experience.' The author naturally finds it difficult to steer between the scepticism as to the mind-and-body problem which he deprecates (Chap. IV.) and the metaphysics which he condemns. He believes that his theory is a legitimate extension of Kantian principles, but Kant claimed it as an advantage of his system that the psychophysical problem which had so long troubled philosophy was at last shown to lie outside the limits of human knowledge.

In his treatment of ethical problems the author likewise attempts to unite the Kantian with the modern evolutionary standpoint, and here again his treatment is rather confusing. The categorical imperative is spoken of as a 'certainly demonstrable psychological fact,' but it is to be explained 'without mystical additions'; and some, if not all, the suggestions made as to its origin seem inconsistent with its peculiar character. When asked how the categorical imperative can evolve, the author gives several answers: (1) It is postulated with reference to the action of one's fellows. What I wish to be done, others, I feel, ought to do. (2) It arises when the necessity of means to ends is considered. I ought to do what will carry out my fixed purposes (p. 88). (3) What is subjectively intensely desired takes on the form of objective good—although it is admitted that men desire many things which possess not the slightest worth (pp. 96, 99). (4) Intellect is the best weapon in the struggle for existence, but developing intellect carries with it as a by-product, it is said, developing morality. Yet it is admitted that this development supplies only the formal conditions of morality. The possession of intellect gives the individual the capacity to act according to ends. "But morality is formally nothing else than action according to an appointed end" (p. 310). It is not clearly shown how the peculiar nature of the moral end can be the necessary result of a developing intelligence. (5) It is further suggested, in an interesting chapter on the 'double root of morality,' that the law of

altruism is imposed upon the governed in the interests of the ruling classes. Altruism is thus both the natural result in all men of a developing intellect and the artificial result in the governed of the overweening egoism of the rulers. Altruism is thus both independent of egoism and dependent upon it.

The author's mind is apparently divided between the desire to retain the Kantian moral imperative in his system and the desire to explain morality wholly in terms of pleasurable feeling. It seems doubtful whether the foundation for an 'exact ethics,' the possibility of which is discussed in a later chapter, has been laid.

Mr. Goldscheid shows a wide acquaintance with philosophical literature, and writes in a fluent style, often with needless repetition. The book contains brief but instructive criticisms of the systems of Schopenhauer and Nietzsche, and a short chapter on free-will, whose assumption in the individual, it is argued, would destroy the responsibility of the state. The evils of modern capitalism and militarism are dwelt upon at length in the closing chapters.

In at least fifteen different places the author promises to return to the question under discussion in a second volume, which has not yet been published. Among the points to be there elucidated are the relation of ethics to religion and of determinism to responsibility, the economic basis of the struggle for existence, the conditions of moral progress, the dangers of under-population, the practicability of an international parliament to regulate production, and the woman question. If this promise is fulfilled, it is to be feared that the second volume will not be free from a certain diffuseness and lack of unity of which the reader of the present volume has a right to complain.

WM. HALLOCK JOHNSON.

LINCOLN UNIVERSITY, PA.

Morale et Biologie. D. PARODI. *Revue Philosophique*, August, 1904, pp. 113-135.

This brilliant and well-written article is a criticism of the modern tendency toward a biological conception of ethics which would make that discipline only the practical application to life of principles determined by the natural sciences, in particular, by the biological sciences. The ideal of life is taken as perfect adjustment of organism to environment, and the necessary conditions for its realization are made matters of scientific research. The whole problem of conduct is simplified by being reduced to terms of general hygiene. Of this general tendency the recent work by Metchnikoff, '*Études sur la nature humaine*,' is taken by M. Parodi as a brilliant specimen and subjected to a searching criticism.

The subtitle of this book, *Un essai de philosophie optimiste*, indicates the attitude of the author. He is an optimist, however, not in the older sense of one for whom the world is the best possible, but in the characteristic modern meaning of one who recognizes everywhere the imperfections of life but sees in science the hope of their removal. These imperfections are of three classes, disease, old age, the fear of death, and all

indicate a radical lack of adjustment to environment, an unnatural condition of life. The hair, the teeth, the digestive organs, the vermiform appendix, the reproductive organs and instincts, are all ill adapted to their purpose even in the prime of life, and, in addition, we have the peculiar ills of old age and the growing fear of death. Modern medicine promises to change all this by its prevention of, and control over, disease, as well as by its modification of the general habits and ideals of life. A rational life will do away with the evils of old age and allow us to live out the natural span of our lives, while, with a true understanding of the meaning and naturalness of death, we may in time develop an 'instinct of death' which will supplant the present insistent and irritating instinct of life. If death is a natural and inevitable element in our experience there seems no reason why there should not be thus developed a corresponding adaptation to it. Thus, under the guidance of science, man may be restored once more to that peaceful harmony with his environment which has been so long disturbed by his irrational attempts at a rational control of life and may lead once again a life of natural instinct.

Two points of criticism are suggested in M. Parodi's discussion of this conception, the ability of modern science to produce this physical perfection and the adequacy of this as a solution of the real moral problem. Adaptation to environment involves the fixity of that environment, but such fixity is found neither in nature nor in society. Disease depends largely upon time, place and social conditions, and so long as these change there can be no permanent peace. The old evils are no sooner vanquished than new ones arise. Moreover, to speak of attaining a natural old age, or of completing the natural cycle of human life is unmeaning from the naturalistic point of view, and implies a discarded teleology. For science, the natural is the actual. As to the development of an instinct for death, such a result is possible only for an already enfeebled organism and would be out of the question for the healthy and vigorous life developed through this scientific training.

But even if we admit the ability of science to perfect our physical life by the removal of these disturbing elements, there is a yet more radical difficulty in the theory. Man, by virtue of his reason, is never a completed product, a fixed quantity, capable of being permanently adjusted and satisfied, and hence the biological ideal of perfect adjustment is impossible of attainment. The life of instinct and untroubled peace is an outgrown stage in his development and he is condemned or chosen to a life of unceasing aspiration and endeavor, to a constant unfixing of his adjustment. To demand a rational return to instinct, is to demand of reason its own negation. Again, we may ask whether the happiness resulting from such an equilibrium is the natural end of man, and analysis of conduct seems to show that it is not, but that he seeks those things in which his happiness is found rather than the happiness itself. Nor can biology decide between the happiness of the individual as his end or that of the species. The struggle for existence is a struggle of individuals, yet nature is prodigal of these and careful only for the species. To the modern scientist the individual is but an incident in the evolution of the world, and

whether he asserts as the end of conduct the happiness of the one or of the whole, his choice is a matter of caprice. Science can neither show the identity of the individual good with that of the race, nor has it grounds for rational choice between the two.

NORMAN WILDE.

UNIVERSITY OF MINNESOTA.

The Practical Reason in Aristotle. F. MELIAN STAWELL. *International Journal of Ethics*, July, 1904.

Did Aristotle posit an ultimate principle as the end and standard of all man's varied activities, or did he deny the connection of ethics and metaphysics, and the regulation of conduct by the conception of an absolute good? The disagreement of interpreters on this point is the occasion for another attempt to clear up the matter. Confusion has arisen in part because of the plan of the 'Nicomachean Ethics,' in which a succession of inadequate statements are presented, with the view of leading up to a more precise definition; and is in part due to a misunderstanding of the nature of Aristotle's criticism of Plato, which concerns, not the search for an absolute standard, but the nature of the standard offered by Plato, its aloofness from all that we want to do. And when Aristotle says that in ethics it is not possible to reach precision, he seems to mean simply that ethical philosophy can not go into detail, but must content itself with laying down general principles, subject to modification in particular instances. Furthermore, when Aristotle says that the noble deed is chosen for its own sake, he does not thereby exclude an ultimate end, in the light of which the right proportion which characterizes noble action may be constituted; in the last book he expressly sets himself the task of determining the exact nature of this mean in view of such an ultimate principle. To this end he introduces a discussion of the faculties in man which can reach it. We have first the distinction between the theoretical and the practical reason, the latter distinguished from the former by having an aim, by treating of what is to be done. The union between them is, however, intimate, for the speculative reason knows the distinction between good and evil, though it never lays down any dictum as to what is to be done. These two faculties both appear on two levels, on a low level as scientific knowledge and prudence respectively; on a higher level, as reason in the great sense, that which grasps the ultimate principles of all things, and as that higher wisdom which deals with not only what is good for man, but with what is good in itself. The supreme end which this last faculty grasps is contemplation, not an arid intellectual exercise merely, but such a contemplation as is promoted by friendship, and constitutes a heightened consciousness of life akin to love,—an *amor intellectualis Dei et hominum*. This is the ultimate ideal, which can not be attained in its fulness under our hampering conditions of mortality. The lower manifestations of reason are temporary and secondary, and the work of prudence will disappear under conditions so ideal as to leave no room for doubt and deliberation, when action will be replaced by activity.

Such an interpretation has the advantage of presenting Aristotle's

theory as a consistent whole, while on any other theory it becomes, at the best, dispersive and incomplete, and at the worst, a tissue of confusion.

DAVID F. SWENSON.

UNIVERSITY OF MINNESOTA.

JOURNALS AND NEW BOOKS

AMERICAN JOURNAL OF PSYCHOLOGY. April, 1904. Vol. 15, No. 2. *The Soul—A Study of Past and Present Beliefs* (pp. 121–200): L. D. ARNETT. — “As progress is made in any line of industry it is well to take an account of stock.” There is a lack of a definite understanding of the word ‘soul’ as used by psychologists and theologians. One object of this study is to present views of both professions. The following are some of the topics treated in the study,—some primitive ideas of the soul; the language development of the term; beliefs concerning the forms of the soul, animate and inanimate; soul localization; the number of souls; Greek ideas of the soul; the theological conceptions; and the soul as referred to in philosophical systems. The concluding part of this study is to appear in the next number. *General Intelligence Objectively Considered* (pp. 201–294): C. SPEARMAN. — Advocates a Correlational Psychology; reviews and criticises methods of previous researches. “Irrelevancies must be eliminated” before correspondence can be found between abilities. Some of these that the author sought to eliminate through a series of experiments were practice, age, sex, zeal. Four series of experiments were carried on with school children as observers. The tests were in Sound, Light and Weight discrimination, and the results were correlated with teachers’, pupils’, and others’ estimate of the general intelligence of the observers. “On the whole we reach the profoundly important conclusion that *there really exists a something that we may provisionally term ‘General Sensory Discrimination’ and similarly a ‘General Intelligence,’ and further that the functional correspondence between these two is not appreciably less than absolute.*” A comparison of the ratios of relationship given by this author as existing between abilities in studies and those given by Thorndike in his more recent work on ‘Mental and Social Measurements’ is interesting. *Literature. Notes.*

July, 1904. Vol. 15, No. 3. *A Preliminary Study of the Psychology of the English Sparrow* (pp. 313–346): JAMES P. PORTER. — A number of adult English sparrows were tested in some interesting ways to determine their intelligence. The author concludes that the English sparrow profits readily by his own and perhaps by the experience of fellows. His rate of learning is rapid, and his adaptability is very great. *The Soul—A Study of Past and Present Beliefs* (pp. 347–382): L. D. ARNETT. — (Conclusion of article in preceding number.) Review of the psychological theories of the soul, with a report of a study of the present beliefs about the soul based on data collected by means of a questionnaire. “However analytic the psychologist may be he is still hopeful, optimistic and char-

itable in his beliefs. The soul of religion, psychology and philosophy should be one, representing as they do two sides of the same phenomenon. It is poor pedagogy to present to the student ideas along one line of thought that are destructive to a related system of ideas." *Facial Vision: A Supplementary Report with Criticisms* (pp. 382-390): ROBERT MACDOUGALL. - This article presents some experimental facts disagreeing with those reported by Dresslar. *Experimental Studies in Mental Deficiency: Three Cases of Imbecility (Mongolian) and Six Cases of Feeble-mindedness* (pp. 391-446): F. KUHLMANN. - This research is illustrated by photographs of the cases. The subjects were tested with regard to memory, practice (throwing at a target and tapping on reaction key), attention and effort (tapping, associating and discriminating), attention span, and a domino discrimination test. The article contains bibliographical references and a bibliography of about two pages. *Literature. Notes.*

REVUE DE METAPHYSIQUE ET DE MORALE. September, 1904. *La Révolution Cartésienne et la Notion Spinoziste de la Substance* (pp. 755-798): L. BRUNSCHVICG. - M. Couchoud's claim that Spinoza simply summarized clearly the Cartesian doctrine of Substance is unjustified. Spinoza applied Descartes' method more strictly, and freed the conception of Substance from ambiguity and barrenness. Neo-platonism is strong in Spinoza. *Sur une Classe remarquable de Raisonnements par Réduction à l'Absurde* (pp. 799-809): G. VAILATI. - A number of *reductiones ad absurdum* are given to illustrate the nature of this process, from Plato down to symbolic logic. *Les Principes des Mathématiques* (pp. 810-844): L. COUTURAT. - Lines, planes, etc., in Geometry are continuous collections in one or more dimensions. Dimensions are defined as single, double, etc., series. The straight line of descriptive geometry is an asymmetrical relation; that of projective geometry is symmetrical. (*à suivre.*) *Etudes Critiques: Une nouvelle Tentative de la Réfutation de la Géométrie générale* (pp. 845-856): G. LECHALAS. - M. Delsol's refutation of non-Euclidean geometry, though a marvelous piece of ingenuity, is fallacious. *Questions Pratiques: Sur l'Idée de Patrie* (pp. 857-892): F. MARGUET. - One's country signifies the ideal of a type of individuality. War contradicts any such ideal; war is folly. Individuals can realize their type only in peace. *Supplément: La Philosophie dans les Universités. Livres Nouveaux. Revues et Périodiques. Fondation d'une Kantgesellschaft.*

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- Janssens, E. *Le Néo-Criticisme de Charles Renouvier*. Paris: Alcan. 1904. 326 pp.
- Opitz, H. *Grundriss einer Seinswissenschaft*. Th. 2. Haacke. 1904. 233 pp.
- Osler, William. *Science and Immortality*. The Ingersoll Lecture. Boston and New York: Houghton, Mifflin & Co. 1904. 54 pp. \$0.85.
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- Schleiferbaum, E. *Begriff u. Bedeutung des gegenwärtigen rechtswidrigen Angriffs*. Breslau: Schletter. 1904. Svo. 1.50 m.
- Strunz, Fr. *Naturbetrachtung und Naturerkenntnis in Altertum*. Voss. 1904. 168 pp.
- Swarte, Victor De. *Descartes, directeur spirituel: correspondance avec la Princesse Palatine et la Reine Christine de Suède*. Paris: Alcan. 1904. 295 pp.
- Titius, A. *Religion und Naturwissenschaft*. Tübingen: Mohr. 1904. 114 pp.
- Whetham, W. C. D. *The Recent Development of Physical Science*. London: Murray. 1904. 356 pp.

NOTES AND NEWS

THE International Congress of Arts and Science at St. Louis closed on September 25. There were few changes in the programme of the departments of philosophy and psychology as originally announced and printed in No. 15 of this JOURNAL. Of the foreign scholars expected, Professors Windelband and Ebbinghaus did not come. Their places on

the programme were taken by Professor William A. Hammond, of Cornell University, who spoke on the relation of logic to psychology and metaphysics, and by Professor Robert MacDougal, of New York University, who spoke on the relations of experimental psychology. An adequate estimate of the work of the congress can not be made until the proceedings are published. That it was an exceptional success is the unanimous opinion of those who attended.

THE two hundredth anniversary of the death of John Locke is to be commemorated at the Johns Hopkins University, Baltimore, by the department of philosophy and psychology, on November 1, at 5 P. M. The program includes addresses on various phases of Locke's work and influence. Among the speakers are Principal C. Lloyd Morgan, Professor Woodbridge, of Columbia University; Professor Sterrett, of the George Washington University; Dr. William Osler, of Baltimore; Commissioner Harris, of Washington, and others. The exercises will be public and those who wish may also hear Professor Morgan's lecture on 'Comparative Psychology' at the same place on November 2, at 4:30 P. M.

DR. JAMES WARD, professor of moral philosophy and logic, at Cambridge University, who gave a course of lectures at the University of California and one of the addresses at the International Congress of Arts and Science, has returned to England after giving addresses and being entertained at Princeton, Johns Hopkins, Wesleyan, Cornell and Columbia Universities.

A DEPARTMENT of experimental psychology has been established in the Western University of Pennsylvania, under the charge of Edmund B. Huey, A.B. (Lafayette), Ph.D. (Clark). Two good-sized rooms and a dark-room are being fitted up for the new department, and an appropriation has been made to meet the initial needs for apparatus and books.

At the recent Cambridge meeting of the British Association, the newly established Psychological Society held a special meeting in conjunction with the section of physiology. The section of physiology is now definitely to include in its title the two studies of physiology and experimental psychology.

COURSES of Lowell lectures are being given by Principal C. Lloyd Morgan, of University College, Bristol, on 'The Interpretation of Nature,' and by Dr. Pierre Janet, of the College de France, on 'Hypnotism and Allied Phenomena.'

PROFESSOR M. M. PARKS, head of the department of psychology and pedagogy of the Georgia Normal College, has been appointed acting president during the year's leave of absence of President Choppel.

PROFESSOR O. A. THAXTON, formerly of Mercer University, Georgia, has recently been appointed to a position in the department of psychology at the State Normal College of Pennsylvania.

PROFESSOR ALEXANDER B. COFFEY, formerly of the University of Washington, has been appointed lecturer in education in the University of Wisconsin.

THE JOURNAL OF PHILOSOPHY

PSYCHOLOGY AND SCIENTIFIC METHODS

PERCEPTION OF DISTANCE

IN an interesting article in No. 20 of this JOURNAL, Dr. Holt has reviewed three recent papers of von Rohr, Koehler and Wandersleb, on the subject of a new instrument constructed by the famous firm of Carl Zeiss in Jena. The apparatus is designed to produce plastic views of any photographic picture in monocular vision, and is called the verant, as it produces the true natural impression of the photographed objects. Dr. Holt's review was based on the three papers, while no copy of the instrument itself had then crossed the ocean. For a few days, however, the verant itself has been in my hands, and as it is, so far, the only one in this country, it may be in order to give an account of my first observations, as the idea of a stereoscope for one eye must naturally awaken the interest of the psychologist. The three papers mentioned approach the problem, not with the interest of a psychologist, but with that of the photographer and optician.

The instrument fulfills that which is promised in the more conservative statements of those papers. My eyes are strongly myopic. I am accustomed to wearing strong eye-glasses which correct my short-sightedness entirely. The prescription for the instrument is that myopic eyes should use it together with their normal eye-glasses. If I do so, the effect is very satisfactory. If I take, for instance, a small landscape picture of 9×12 cm. in size, taken with a kodak camera in which the distance of the plate from the lens is 15 cm., and look at it, as most convenient for my eye with correcting glasses, at a distance of 30 cm., I have the impression of a flat picture. If I close one eye and put the verant lens before the open eye and look now at my kodak picture, I can not get a distinct image at all at a distance of 30 cm., but must bring it as near as 15 cm. to get a sharp view, and as soon as I do so, the picture at once suggests a plastic interpretation. Yes, it can not be denied that the solidity of the objects in the landscape appears somewhat more natural than the well-known view in stereoscopic pictures where the impression is too easily one of a little stage in which one piece of scenery is set,

without transition, behind the other. Everybody who inspects the photograph in this way seems to feel the same surprise; and yet I must confess that the only surprising fact to me is the discovery that this is new to all to whom I gave the instrument for inspection, and not least to those who are myopic like myself. We short-sighted persons can have exactly the same effect which the verant, together with biconcave eye-glasses, gives to our eyes as soon as we take off both the eye-glasses and the verant, and it seems almost inexplicable that every myopic person has not found this out for himself. For years I have been in the habit, if I want to enjoy a photograph, of taking off my eye-glasses, closing one eye, and bringing the photograph so near to the pupil that the angle under which I see the picture corresponds to the angle under which the view has been taken by the photographer. Not only the distant landscape, but every portrait assumes then at once a beautiful plasticity which far surpasses the effect of the stereoscope. The nearness of the object allows the restitution of the natural perspective, and all the motives of experience can thus cooperate to interpret the picture as the view of an object in three dimensions. As soon as the photograph is held at double the distance, the perspective is falsified, the plastic interpretation is inhibited, and this inhibition reaches, of course, its climax as soon as the photograph is looked at with both eyes, as the identical impression of both retinae totally excludes a three-dimensional perception.

This inborn gift of the myopic eye is furnished by the verant to the normal eye, which is unable to see a picture as near as 15 cm. or less. The verant makes the eye short-sighted. It is a magnifying glass, which makes it easy for every normal eye to see a photograph at a distance of from 9 to 15 cm., and thus to reproduce, without any overstrain of accommodation, the angle of vision which belongs to the objects in nature. The lenses to be used have had to be calculated carefully. A much larger field of vision was needed than the usual magnifying glasses offer, and care had to be taken that the chief rays which pass through the magnifying glass should reach the fovea at every position of the eyeball when the eye is moving over the whole field. All this has been most successfully effected, as was to be expected of those optical masters whose recent improvements of microscope technique and whose new telestereometrical instruments deserve the highest credit. The large public, suffering from the defects of its virtues, deprived, that is, of the privilege of a natural magnifying glass on account of normal eyesight, will of course gladly make use of this system of lenses. But psychologically the apparatus does not offer anything new. If not

every myopic person, then at least every myopic psychologist must have enjoyed these experiences before.

The defenders of the verant have made, however, a further statement which seems to involve in a still higher degree the interest of the psychologist. Dr. von Rohr, for instance, says in his paper, reprinted from the *Photographic Journal*: "Summing up, we come to the following conclusions: supposing a verant lens of the focal length of the camera objective, a normal eye will obtain, through the verant, as far as perspective and accommodation are concerned, the same impression it would obtain from the natural landscape when brought to the place of the entrance pupil of the camera lens. And if color is neglected the impression caused by the photograph will exactly correspond with that exercised by the natural objects. This necessarily affects our apprehension of relief, and our estimation of distance must correspond with the conclusions we should derive from monocular inspection of the objects themselves." In the same way, the other authors take for granted that perspective, accommodation and color are the only factors which can possibly influence our monocular perception of distance, and that abstracting from color, and the strain of accommodation being excluded, a picture seen under the angle under which it has been photographed must give exactly the impression of real nature. That is, we must have the feeling not only that there is some relative depth in the parts of the photograph which we see a few centimeters from our eyes, but that we are looking into the real landscape seen from the standpoint of the camera's lens.

This effect would not only be psychologically interesting, but it would be also of practical importance. It is well known, for instance, that the very desirable introduction of the stereoscope into the schoolroom has so far suffered from the undeniable fact that the stereoscopic impression is not at all that of the real landscape but merely that of a very small plastic model of it, which gives after a short time the fatiguing feeling of dealing with small toys and not with reality. Now if the verant really succeeded, through giving the right perspective and by avoiding strained accommodation, in giving the impression of far distance, this practical difficulty would be solved. But it is in this point that I think that the promises are not conservative; that we have been made to expect more than the apparatus offers. The perspective is correct, accommodation is not involved, and yet I do not see anything but a picture which is a few centimeters from my eye and which for immediate perception is absolutely different from a view into the real landscape. It appears exactly as it appears to my myopic eye without any glass. There, too, the perspective is correct, and the lens adjusted to its normal

distance without accommodation, and yet there is no suggestion of reality, merely a suggestion of a small plastic model. Of course in the case of the verant, as in the case of the stereoscope, suggestible subjects can be easily brought to an affirmation of the question whether they see in the apparatus the same which they would see in real nature. The unusual and unexpected plastic character of the impression is then unwittingly substituted for the feeling of natural distance. But whoever is able to separate seeing in three dimensions from seeing in natural distance can not doubt that in both cases alike we reach the first end, the plastic interpretation, but are just as far removed from the other, the feeling of natural distance, as in the ordinary vision of pictures. The new instrument is thus in no way a real 'verant.'

The question arises, Why is that so? If I bring my landscape picture on a transparent glass plate into such a distance from my one eye that every point of this transparent photograph covers for my resting eye exactly the corresponding point of the real landscape and yet accommodation is excluded, as, for instance, in the case of the short-sighted eye, or in the case of the normal eye with the verant lenses, then we have exactly the retinal images of the real view of nature and the same repose of the lens. Why are we, nevertheless, absolutely unable to substitute the near object for the far one? This problem exists in spite of all the theoretical assurances that the one ought to appear exactly like the other, and I think that it is not impossible to furnish an answer to it.

If I am not mistaken, there is one point of difference between seeing the mere picture and seeing the far landscape, which has been neglected in the usual discussions. Every one knows, of course, that we see the picture and the landscape normally with the help of eye movements. The eye moves from point to point; but psychologists have neglected the consideration that the relation between eye movement and retinal image must be quite a different one for the landscape and for its photograph. Let us consider the simplest possible case, the case of the myopic eye without any lenses whatever, and without any need of accommodation for a picture as near to the eye as 10 cm. If I take a small landscape picture made with a camera whose distance from lens to plate is 10 cm., I have a splendid plastic view if I see it at a distance of about 10 cm. from my eye. I have before me just such a picture in which two mountain peaks are, in the photograph, 1 cm. distant from each other. If I now have my little picture at the distance of 10 cm. from the eye, these two mountain tops correspond in their distance of 1 cm. exactly to the retinal image which the two real mountains, which are ten miles away and one mile distant from each other, produce in my

retina. The retinal image of the two mountain peaks in the photograph is thus for my resting eye indeed identical with that of real nature. Does that mean that I have to make the same eye movement to go from the left to the right mountain in the landscape as in the picture? Of course, that would be so, the movement would be just as identical as the retinal images if the nodal point of the light rays were identical with the rotation point of the eyeball. But everybody knows that this is not at all the case. The light rays cross in the lens. The angle of vision, and thus the size of the retinal image, are thus dependent upon the distance of the lens from the retina. But the movement of the eye is related to a rotation-point which lies about 13 mm. behind the cornea, roughly speaking 1 cm. behind the nodal point of the rays. This additional centimeter plays, of course, no rôle whatever, if I look at my mountains in the real landscape; following with my eyeball from the fixation-point of the left mountain to the fixation-point of the right mountain, I make a movement whose angle can be declared identical with the angle under which I saw the two mountains with the resting eye in the first position. This angle of vision was determined by the distance of the nodal point, which was in our case ten miles, while the angle of eye movement was determined by the distance of the rotation-point, which would be ten miles plus one centimeter, and there is of course no possible difference for practical discrimination between these two distances.

But the situation is completely changed if I turn to my little picture 10 cm. distant from my eye. The angle under which I see my two peaks is, of course, again the same under which I saw them in the real landscape. It is determined by the distance of the picture from the nodal point, which is in this case 10 cm. But the angle of the eye movement necessary to fixate first the left and then the right peak is now a much smaller one because it is again determined by the distance from the rotation-point, and that is in this case 10 cm. plus 1 cm. With this short distance of the picture from the eye this one additional centimeter is not at all the negligible quantity which it was in addition to ten miles in the landscape. For the two real mountains the angle of the eye movement had a tangent of one tenth; for the photograph mountains, in spite of their equal size of retinal image, the angle of necessary movement would of course have a tangent of one eleventh. Roughly speaking, we could say that the photograph, in order to produce the same eye movement which the mountains in the landscape excited, would need a pictorial distance between the two photograph mountains of 11 mm. instead of 10 mm. Of course if the distance in the picture were made 11 mm. instead of 10, it would not cover any more the

mountains of the landscape. The retinal image would thus be relatively too large and would not give us any longer the true landscape. On the other hand, if we tried to correct it by bringing the picture one centimeter nearer to the eye, then of course every retinal image would be enlarged by that necessary tenth, and yet there would be no help for the situation, as now again the eye movement demanded by the retinal image would be relatively increased too.

We can put it in this way: *my real landscape demands a relation between retinal image and movement which my picture can not produce under any circumstances whatever.* That which would be needed to imitate the relations would be realized only if I had my retinal images from the picture at a distance of 10 cm., and at the same time the movements belonging to the same picture seen at a distance of 9 cm. That is of course unrealizable. We can not see a picture without having our movements constantly controlled by the size of the real retinal images, as it is necessary that the distance seen in indirect vision is the distance covered by the fixation-point during the eye movement. That demands, as we have seen, a different relation between retinal image and eye movement for near and far, and no verant and no stereoscope can eliminate this factor. If a 10-mm. object in the photograph demands an 11-mm. movement to give the impression of real natural distance, then we have a condition which can not be fulfilled.

If we remember how extremely delicate is our normal sensitiveness for retinal distances and how the newer studies in stereoscopic vision have demonstrated an unsuspected delicacy of adjustment between retinal images and motor responses, it is evident that this so far always neglected relation must be an extremely important one. If we have one adjustment of central reaction in which a certain eye movement corresponds to retinal images of one size, and another adjustment in which the same movements correspond to retinal images which are ten per cent. larger, we can really not expect our judgment of distance to neglect the difference between these two systems of relations. Of course they represent two extreme cases. Every distance beyond 10 cm. demands its special adjustment up to the point where the distance becomes too large to be influenced by the distance from the nodal point to the rotation-point. We must thus presuppose a sliding scale of ever new adjustments for the different distances at which we see any object, and we have, in this relation, probably not the least important factor in the judgment of the third dimension for relatively near objects, and probably even more important than the irradiation circles which control the accommodation, as these circles must be the same for objects which lie before and behind the fixation-point. Of course

the whole system of our localizing reactions becomes through these considerations more complex by far than the schematizations of the text-books propose. But physiological optics has shown at every point in its development that mere simplification has not always meant a deeper insight into the real relations.

HUGO MÜNSTERBERG.

HARVARD UNIVERSITY.

NOTE ON THE PHYSICAL WORLD-ORDER.¹ I

IT is a matter of common experience that we know something of the meaning of the term *body* and of the distribution of *bodies in space and time* before we are acquainted with those physical laws which, where they are known, enable us to describe bodies in new ways and to arrange them in that system which we call the physical world.

The task of discovering these laws, of effecting these descriptions, of constructing this system, belongs to a group of sciences, which, though differing *inter se*, we are accustomed to include under the single name of *physical science*. I say we are accustomed to refer to a single physical science; I mean we constantly hear such questions as these: What is the *physical basis* of life? How far are differences of civilization due to *physical*, how far to economic, etc., causes? These and similar questions lead us to contrast a science of physical causes with such sciences as biology, psychology and sociology. But just what sciences are included under the head of the physical, and on what ground they are included is by no means an easy matter to determine. Perhaps all would admit to this class the sciences of physics and chemistry; some, with Helmholtz, would include geometry; others, with the 'mechanists,' would include biology. But even if we confine ourselves to general physics and chemistry, there are still to be noted wide differences in method. Between mechanics, say, and chemistry, these differences are of sufficient importance to make the problem of finding a common nature in the two branches of science an extremely difficult one.

Nevertheless, I think we can frame a definition which, if applied to the sciences actually known, would bring into one class those which are usually included under the head of physical science, and explain the uncertainty in which we remain concerning others.

¹This article was prepared at the request of Professor George S. Fullerton, who, with the author's permission, has appended it as a *Note* to his work 'A Treatise on Metaphysics' (*in press*). The thanks of the author are extended to Professor Fullerton and to his publisher, The Macmillan Co., for their courtesy in authorizing the publication of this *Note* in its present form.

I venture to say, then, that a *physical science is one which employs in its description of nature only such terms as can adequately be defined by the use of the measuring rod.*

What is here meant by the *description of nature* offered by a science will best be understood if we consider a typical scientific problem: Given a group of bodies, in which are to be found certain conditions, such as position, volume, mass, temperature, etc., what changes of condition are these bodies going to undergo? To answer this question we should have to be in possession of a law which connects these conditions with one another and with time. The *description of nature* offered by a science is nothing other than the law or series of laws which it has formulated.

Now, our definition asserts that such a law is a physical law, if to understand its meaning and to verify its truth no knowledge is presupposed other than such as is involved in the use of the measuring rod. In examining the application of this definition to known sciences, its import will be seen more clearly.

The use of the measuring rod, *i. e.*, the description of the procedure by which we may determine the ratio of two lengths, is established in certain of the axioms of geometry. All the axioms are not devoted to this description; some explain the way in which, knowing how to determine the ratio of two lengths, we may determine the relative magnitudes of two angles. We may say, therefore, that all that portion of geometry which is not a definition of measurement, but which records the results of measurement, falls under our definition of a physical science.

Next, let us turn to the science of mechanics, and by way of fixing our thoughts we may consider a particular law of mechanics, say, the law of gravitation. This law is of such a nature that in order to apply it to a group of bodies we are obliged to know the mass of each body, its position, and the velocity with which it is moving. Applying the law, we can calculate the values which these conditions will assume at any moment. Now, of the terms used in this description, the positions of the bodies would evidently be determined by the use of the measuring rod in conformity with the principles of geometry; but when we describe the motion of bodies we are obliged to introduce such terms as velocity and acceleration. These terms stand for quantities and are susceptible of measurement, but in determining their values it is not sufficient to measure space magnitudes; we are obliged also to measure periods of *time*. It may not at once be apparent in what sense time can be determined by the use of the measuring rod; yet the physicist defines time as the hour-angle of a certain star, and this angle is, in the last resort, determined by measurements of length. Time, therefore, and con-

sequently such ratios of space and time as velocity and acceleration, are determined by the use of the measuring rod.

Finally, in our mechanical example we have had to make use of the term *mass*. This once more appears in our law as a quantity susceptible of measurement; but in what sense can this measurement be effected by the use of the measuring rod? The mass of a body is not determined by its geometrical form or by its volume, for two bodies of exactly the same form or of the same volume may have different masses ascribed to them; and to suppose with Democritus that bodies are made up of atoms which themselves differ in mass only as they differ in volume, would carry us beyond the limits of scientific experience. It is not necessary to introduce any venture-some hypothesis in order to understand in what sense the physicist's determination of the mass of a body depends solely upon measurements of length. Indeed, in the simplest instrument for determining mass, *viz.*, the balance, it is at once evident that no observations are made except observations of position. This, to be sure, is a determination of mass under particular conditions; but it can easily be shown that the most general definition of mass which the physicist can frame is stated in terms of positions and motions involving only such quantities as can be determined by the use of the measuring rod.²

It is clear, then, that if the science of mechanics were nothing but an application of the law of gravitation, it would fall within the class of physical sciences as here defined. Now, although the science of mechanics may include other laws than that of gravitation, these other laws must yet resemble the law of gravitation in that the only terms which they employ are ultimately definable in terms of mass, length and time. What has been said, therefore, of these terms as they occur in the law of gravitation, might be said of them with equal truth as they occur in any other law of mechanics. So that we may conclude that the science of mechanics employs in its description of nature only such terms as may be understood by the use of the measuring rod, and that consequently it falls within our definition of a physical science.

The other sciences that are ordinarily recognized as physical build on the mechanical basis, *i. e.*, the new terms which they introduce into their description of nature involve in their definition the three whose meaning has been fixed by mechanics. A complete description of these new terms would lie outside the plan of the present paper. We may, however, indicate the lines which such a discussion would follow, by considering the sense in which the *units* introduced

² Vide Mach, 'Mechanics in its Development,' ed. 2, p. 243.

into general physics' are in the end determined by the use of the measuring rod.

Thus, a *unit quantity of heat* is the quantity required to raise a unit mass of water one degree centigrade. The term 'mass' we have already considered: it need hardly be pointed out that the ordinary measure of temperature—the expansion of a mercury column—is a linear one, while a degree of absolute temperature is defined by Thompson in terms of mechanical work. Again, a *unit quantity of electricity* is the quantity which acts on a similar quantity with unit force at unit distance. Now a unit force is one which would impart to unit mass a unit acceleration. The measure is therefore based upon mechanics, and the instrument actually used in the measurement, say Coulomb's torsion balance, is read in degrees of arc. As a last example, a *unit atomic mass*, though difficult to define, involves no measurements save those which determine mass and volume.

These units which enter into the different physical sciences reveal in a characteristic way the nature of the sciences. It is only when we are in possession of the fundamental laws of a science that we can define the meaning of such units. This discussion of them will suggest the way in which a complete examination of the physical sciences with respect to their definition would have to be made. I shall take it to be sufficiently established for our purpose that physical sciences describe nature in terms whose meaning depends wholly on the use of the measuring rod. So defined, we see that they would include the known sciences of mechanics, general physics, and chemistry; but what sciences, if any, would such a definition exclude?

Suppose one were asked: What is the future of republican institutions? or, What is the cause of the decay of the drama? Would a reasonable person be likely to arm himself with a foot-rule with which to discover the answers to these questions? And yet such questions have a meaning. The demand of the one for prediction and of the other for explanation is a scientific demand, and a scientific effort can be made to meet it. Only it seems scarcely sensible to ask one to put these problems in such wise that a measuring rod would play any part in the solving of them.

Take another question: Why did the picture of a summer day in another land come into my mind just now as I looked out upon a bleak landscape? I search among my ideas for *links of association*. The law of association with which I am for the moment satisfied can apparently not be expressed in terms reducible to space measurements. Even the observation of living organisms whose simpler forms behave in a way that we are more and more inclined to regard as determined by physical and chemical laws, gives rise to terms and laws that seem to have no reference to the foot-rule. *Habit*,

inheritance, variation, natural selection,—these terms mean something, they describe conditions we can recognize; the laws have a significance, on the basis of given conditions they serve us in prediction and explanation. We are evidently dealing with a science, but with one which appears to fall without our definition of a physical science.

It would seem, then, that there might be sciences pursuing methods other than physical—at least there is a reason for thinking so sufficient to have given rise to interesting problems concerning the possible limits of the physical image of nature. For example, the question has often arisen in the history of reflective thought: To what extent have we a right to expect that for every definable natural phenomenon a physical explanation may be found? We may illustrate the meaning of the question, as well as indicate its answer, by a particular example.

We said that physical science devotes itself to the study of objects in space and time, so far as their behavior is ultimately describable in terms of the measuring rod. Among the bodies whose behavior is thus describable are the bodies of our fellow men and our own. The body of my neighbor yonder would fall from a height to the earth with the same acceleration as would a stone. The physics and chemistry of the process of nutrition, secretion, etc., going on in his body are becoming better known. Even that portion of its activity which we are accustomed to regard as deliberate, and which sufficiently distinguishes his body as animate and conscious, may still resemble the behavior of an inanimate machine in its obedience to such laws as that of the conservation of energy. Have we not, therefore, every reason to suppose that, with advancing science, that particular natural phenomenon,—the behavior of a given human being,—will receive a physical explanation?

No sooner, however, do we conceive a hope of receiving a physical answer to the kind of question respecting our neighbor's behavior that we have instanced, than it occurs to us that there are many questions respecting such behavior to which we would not expect a physical answer. The beautiful old illustration that Plato gives in the *Phædo* will serve us here. Socrates, it will be remembered, was sitting in prison awaiting his execution. The painful interval remaining was to be whiled away in pleasant discourse with his disciples on the immortality of the soul. In the course of the discussion Socrates is led to consider in what different ways things may be explained. He recalls the enthusiasm with which he first learned that Anaxagoras, instead of resting satisfied with the old order of mechanical causes, had sought to show how 'mind was the disposer and cause of all.' But he was quickly undeceived:—

“What hopes I had formed, and how grievously was I disappointed! As I proceeded, I found my philosopher altogether forsaking mind or any other principle of order, but having recourse to air, and ether, and water, and other eccentricities. I might compare him to a person who began by maintaining generally that mind is the cause of the actions of Socrates, but who, when he endeavored to explain the causes of my several actions in detail, went on to show that I sit here because my body is made up of bones and muscles; and the bones, as he would say, are hard and have ligaments which divide them, and the muscles are elastic, and they cover the bones, which have also a covering or environment of flesh and skin which contains them; and as the bones are lifted at their joints by the contraction or relaxation of the muscles, I am able to bend my limbs, and this is why I am sitting here in a curved posture; that is what he would say, and he would have a similar explanation of my talking to you, which he would attribute to sound, and air, and hearing, and he would assign ten thousand other causes of the same sort, forgetting to mention the true cause, which is, that the Athenians have thought fit to condemn me, and accordingly I have thought it better and more right to remain here and undergo my sentence; for I am inclined to think that these muscles and bones of mine would have gone off to Megara or Bœotia—by the dog of Egypt they would—if they had been guided only by their own idea of what was best, and if I had not chosen as the better and nobler part, instead of playing truant and running away, to undergo any punishment which the state inflicts. There is surely a strange confusion of causes and conditions in all this. It may be said, indeed, that without bones and muscles, and the other parts of the body, I can not execute my purposes. But to say that I do as I do because of them, and that this is the way in which mind acts, and not from the choice of the best, is a very careless and idle mode of speaking. I wonder that they can not distinguish the cause from the condition, which the many, feeling about in the dark, are always mistaking and misnaming.”

There is here a physical situation which Plato roughly outlines, but to have this situation pointed out to us in reply to our question, Why, Socrates, are you sitting here? strikes us as droll. Besides the physical questions respecting Socrates' behavior and the physical answers which in the course of time we may hope these questions will receive, there would seem to be other questions which are not physical, and to which we can neither hope for, desire, nor conceive a physical answer.

To reconcile these two points of view an assumption has sometimes been made which will illustrate very well one sense in which physical

science has been supposed to be of limited application to nature. The assumption is,—and we may suppose Descartes to make it,—that in spite of the fact that most of the behavior of a human body is capable of explanation in terms of physical science, yet not all of its behavior is so. Even if we were in possession of the most complete physical knowledge, a part of that behavior would remain unpredictable on physical grounds. This part is not, perhaps, inexplicable, but if we try to explain it, it must be in terms which have no physical meaning, *e. g.*, in terms of *motives*. In our example it was the suggestion of a physical explanation for this part of Socrates' behavior which furnished the comic element in Plato's sketch.

This way of looking at the matter would seem to be intelligible, at least. We find a ship propelled by a physically describable machine, but to explain its whole behavior we should have to take into account the helmsman, who is no part of that machine. The human body is analogous. It is a machine directed by a soul, which is no part of that machine. The part of this conception which demands our immediate attention is not the introduction of the soul, but the hypothesis of an incomplete physical machine. We are not concerned with the adequacy of the non-physical filling, but with the assumption of the physical gap. The assumption is, that part of the behavior of an object in space and time can not be explained in physical terms.

With regard to this hypothesis I need not ask, Is it true? but rather, Is it intelligible? Does it really mean anything? In the first place, it will be noted that the hypothesis in question is not an attempt to point out our actual inability to give a physical explanation of a certain phenomenon. This inability every one would admit. The point of the whole hypothesis is that the phenomenon is assumed to be essentially inexplicable in physical terms. What, we ask, does *essentially inexplicable* mean in this connection?

EDGAR A. SINGER, JR.

UNIVERSITY OF PENNSYLVANIA.

DISCUSSION

OF 'TIME PERCEPTION'

I

DR. MONTAGUE'S theory of time perception, and the discussion it has called forth, have been most interesting and instructive.

I find myself especially sympathetic with Dr. Montague's general view of consciousness, and therefore feel the more hesitancy in

criticising his position in relation to the subject he treats. Nevertheless, it seems to me clear that his theory, as thus far presented, shows a very important weakness in the fact that, while it takes account of pastness and of specious presentness, it takes no account of futureness.

Now it seems to me that the appreciation of futureness is of equal moment with the appreciation of pastness, and I can not but feel that a theory which relates to our appreciation of *timeness* in any way must be inconclusive—yes, open to grave objection—unless it deals with futureness as well as specious presentness and pastness; and unless it is able to show the relation between the three phases of the time quality. Psychologists will look with much interest for a further elucidation of Dr. Montague's views which will make his theory more complete in the directions above noted.

II

Dr. Montague's theory is based upon our attempt to answer the question, 'How is it that at any one moment there can appear to be present several moments?' Now here I must confess that, under the view as to the nature of consciousness which I have been presenting in late numbers of this JOURNAL, this question does not seem to me to be one which involves very serious difficulty.

Consciousness in any moment, in any '*Now*,' appears as a complex '*noetic pattern*,' part of which—what we call the field of attention—is emphatic.

This field of attention is, however, always complex; the main emphasis of the noetic pattern is always pervaded by a number of more or less distinguishable minor emphases.

Now each emphasis in consciousness, as given in reflection, displays some phase of the time quality; it must be qualified either by pastness, or by specious presentness, or by futureness; although in many cases this *timeness* qualification may not be sufficiently prominent to call for remark. When the field of attention is definitely complex, when the main emphasis of the noetic pattern displays within it distinguishable minor emphases, each of these minor emphases must also display either pastness, or specious presentness, or futureness.

This is quite comparable with the fact that each of these minor emphases must display specific grades of the other general qualities. For instance, each of these minor emphases must display some measure of intensity, some measure of stability or realness, some measure either of pleasure or of pain.

It does not seem to me to be remarkable, therefore, that we should grasp in any one '*now*' a number of minor emphases in which are

noted diverse grades of the diverse phases of timeness—some of these emphases seeming to have more or less of pastness, and, I may add, others seeming to have more or less of futureness; those emphases in which neither pastness nor presentness is displayed being described as distinguished by specious presentness.

III

The real problem, then, seems to me to lie deeper down, as it were, and may be stated by asking why some of these minor emphases within a total emphasis display more or less of pastness, why some display more or less of futureness, why some display specious presentness.

I shall not pretend to have reached any settled conviction on this point, but it seems to me that this is an opportune moment to call attention to a possible direction of inquiry which may lead to a solution of this problem.

If we consider the neururgic patterns, which correspond with the noetic patterns of which we have thus far been speaking, we note that each of the minor noetic emphases above spoken of must correspond with given minor neururgic emphases. These neururgic emphases are due directly or indirectly to the reception of stimuli received from the environment; and, as we men are exceedingly active, in an ever-changing environment each neururgic emphasis must ever be changing in complexity. And it is evident that each neururgic emphasis must display one of three phases, either a developing complexity, or else a simplifying complexity, or else a condition of unchanging complexity; which last must, in general, appear as a transition form.

Evidently also these diverse characteristics of neururgic emphases will be brought into most prominence when we are directly affected by other objects in the environment.

When objects are approaching us, the neururgic emphasis produced by their effect upon us will markedly display developing complexity. When objects are departing from us, the related neururgic emphasis will markedly display a simplifying complexity. When objects are stationary with reference to us the related neururgic emphasis will display an unchanging degree of complexity.

It would appear thus that each neururgic emphasis, when considered from a certain aspect, must display always one phase of a three-phased quality. It must display either an increasing complexity, which will be most prominent when we are affected by objects approaching us; or a decreasing complexity, which will be most prominent when we are affected by objects departing from us;

or an unchanging complexity, which will be prominent when the objects affecting us are stationary in relation to us.

Now, if there is any truth in the theory of a thoroughgoing noetic and neururgic correspondence, we should expect to discover in consciousness a general three-phased qualification of our noetic emphases corresponding with the three-phased qualification of our neururgic emphases just described. Beyond that, we should expect these phases to be most distinctly marked in connection with the mental states occasioned by objects respectively coming to us, going from us, or stationary with reference to us. And if, as is our habit, we happen to use spatial terms in speaking of our experience in this respect, we should expect to find ourselves describing this three-phased mental quality in terms of relation to the movement of objects in the outer world.

Here, then, we are led to ask whether we have the experience of such a three-phased general mental quality, and one which we thus describe in spatial terms. We are at once ready to agree that we have such a quality in the time quality.

The futureness of a noetic emphasis is usually described by speaking of the future as coming to us.

The pastness of a noetic emphasis is usually described by speaking of the past as going from us.

The presentness of a noetic emphasis is usually described as the present which is with us.

This would indicate that the time quality is a special 'feeling of relation,' due to the conditions of complexity, or to relations directly variable with the conditions of complexity, within the noetic emphasis to which the pastness, or the specious presentness, or the futureness is attached.

IV

All that I have said above relates to the question, what in any specific noetic emphasis is the basis of the appreciation of a special phase of timeness, whether pastness, or specious presentness, or futureness? But, evidently, if this is due to the appreciation of changes of complexity, in the cases of pastness and futureness there is a more fundamental question to be answered; for when we appreciate change of complexity we must, under our view, experience a noetic pattern of multiple emphasis in which must appear at least three minor emphases, α and α' and that minor emphasis which we describe by saying α was before α' . Whether the specific minor emphases display pastness or futureness, therefore, we have in each case this same appreciation of 'one after another,' and that itself involves the appreciation of the time quality.

It would seem, thus, that the noetic qualification which involves the placing of a given emphasis in time, in the past or in the specious present or in the future, must be, as it were, laid over upon a more fundamental noetic qualification which involves the appreciation of timeness in itself.

We, as psychologists, have here, then, to consider this more fundamental time problem which must have relation to all forms of noetic emphasis. It appears to me that we find its solution in terms of neururgic and noetic assimilation; and here I am glad to feel that, if I understand Dr. Montague, there is a close harmony between the general positions taken by him and the view I shall now present.

V

If we could assume a neururgic condition in which all of the elements of the nervous system were equally active, the neururgic surface, so to speak, would appear as a plane upon which no appreciable neururgic pattern would appear. The nearest approach to such a neururgic condition in our experience is the condition of deep sleep. Now let us suppose ourselves aroused to a fully awake state by the stimulations due to a flash of lightning and a simultaneous crash of thunder. Then a complex neururgic pattern would at once develop which may be symbolized with artificial simplicity as $\overset{a}{S}1.2.3.4.5$. But the hypernormal activities in the special neural elements represented by the above symbol would at once spread their influence within the whole neururgic system, the activity of which as a whole would be increased in some measure; and this would lead to a gradual disappearance of certain minor emphases, which would no longer appear as such if the degree of activity of the whole mass of the neururgic system were increased.

Consequently, if in the two moments following the flash and thunder we assume no other source of stimulation, the neururgic pattern would display forms which may be symbolized in (2) and (3) below. The large S of moment (1) is displaced by the small s in moments (2) and (3), in order to indicate the fact that the parts of the nervous system in immediate contact with the environment—the sensory organs—are no longer hypernormally active.

The neururgic emphases of the three moments would then be symbolized as follows:

- (1) $\overset{a}{S}1.2.3.4.5.$
- (2) $\overset{a}{s}1.2.3.4.$
- (3) $\overset{a}{s}1.2.3.$

If in moments (2) and (3) new forms of stimulation reach us, as is almost invariably the case in our experience, we may symbolize the new form of moment (2) by $\overset{\beta}{S}$, and that of moment (3) by $\overset{\gamma}{S}$. Consequently we may symbolize the neururgic conditions of these three moments as usually given as follows:

- (1) $\overset{\alpha}{S}1. 2. 3. 4. 5.$
- (2) $\overset{\beta}{S}1. 2. 3. 4. 5.; \overset{\alpha}{s}1. 2. 3. 4.$
- (3) $\overset{\gamma}{S}1. 2. 3. 4. 5.; \overset{\beta}{s}1. 2. 3. 4.; \overset{\alpha}{s}1. 2. 3.$

We thus symbolize the simplest possible form of the neururgic pattern in any moment; and it would appear that, if this symbolization is correct, the same fundamental form must be displayed in all more complex, and more usual, forms of the neururgic pattern.

Here, in (3) above, we have, then, a typical neururgic form; and it is one which displays multiple emphases *and a simplifying complexity*.

The corresponding typical forms of neotic patterns may be symbolized as follows:

- (1) $\overset{\alpha}{P}1. 2. 3. 4. 5.$
- (2) $\overset{\beta}{P}1. 2. 3. 4. 5.; \overset{\alpha}{p}1. 2. 3. 4.$
- (3) $\overset{\gamma}{P}1. 2. 3. 4. 5.; \overset{\beta}{p}1. 2. 3. 4.; \overset{\alpha}{p}1. 2. 3.$

Here the large P is used to indicate emphases in which sensational elements are usually prominent; *i. e.*, what are usually called presentations, but what I prefer to call primary presentations. The small p is used to indicate emphases in which these sensational elements are lacking, or lacking in any prominence; *i. e.*, what are usually spoken of as images, or representations, but what I prefer to call secondary presentations.

In (3) above we have then a typical noetic form; and it is one which displays multiple emphases *and a simplifying complexity*.

Now if this is a proper symbolization, and if the above given hypothesis as to the basis of temporal appreciation is correct, then every neotic emphasis—every presentation in attention—should be appreciated as involving the *timeness* qualification due to a simplifying complexity, and which, when it becomes very marked, we describe, as we have seen, as pastness. That is, in each moment each emphasis in consciousness, when considered in relation to this *timeness* qualification in itself, should be appreciated as slipping away from us into the past; and consciousness in this aspect might well be de-

scribed in spatial terms as a stream flowing from us. That we do appreciate the field of attention as in general of this form I think is clear; and that we do thus describe it as a stream none will deny.

We have thus a general form of noetic emphases involving temporal appreciation, and this must hold whether we appreciate an emphasis as in the specious present, or as especially qualified by pastness, or as especially qualified by futureness.

It would appear, then, that the qualifications which lead us to the distinct placing of an emphasis in the past or in the future, must be due to forms which are, as it were, overlaid upon this typical form.

Now I take it that when the form of the noetic pattern of three successive moments is symbolized as above,

$$(1a) \quad \overset{a}{P}1.2.3.4.5.$$

$$(2a) \quad \overset{\beta}{P}1.2.3.4.5; \overset{a}{p}1.2.3.4.$$

$$(3a) \quad \overset{\gamma}{P}1.2.3.4.5; \overset{\beta}{p}1.2.3.4; \overset{a}{p}1.2.3,$$

then in (3a) we appreciate specious presentness, which in itself has the *timeness* qualification pure and simple, and is describable as a section of a stream flowing from us.

But when the form of the noetic pattern of three successive moments may be symbolized thus (the primary presentations showing a simplification of complexity),

$$(1b) \quad \overset{a}{P}1.2.3.4.5.$$

$$(2b) \quad \overset{\beta}{P}1.2.3; \overset{a}{p}1.2.3.4.$$

$$(3b) \quad \overset{\gamma}{P}1; \overset{\beta}{p}1.2; \overset{a}{p}1.2.3,$$

then in (3b), over and above the simplification of complexity which is common to all noetic emphases, there appears a form in which a simplification of complexity¹ becomes very marked, and then we appreciate a definite sense of pastness as existing in connection with the whole noetic emphases (3b).

On the other hand, when the form of the noetic pattern of three successive moments may be symbolized thus (the primary presentations showing a developing complexity),

¹ The fact that in this symbolization the simplification appears in inverted form in (3b) is of no significance, inasmuch as each of the minor emphases $\overset{\gamma}{P}1$; and $\overset{\beta}{p}1.2$; and $\overset{a}{p}1.2.3$ (and the same is true in all similar cases) is appreciated in one and the same moment, as inherent in one more complex emphasis.

(1c) $\overset{a}{P}^{1.2.3.4.5}.$

(2c) $\overset{\beta}{P}^{1.2.3.4.5.6.7}; \overset{a}{p}^{1.2.3.4}.$

(3c) $\overset{\gamma}{P}^{1.2.3.4.5.6.7.8.9}; \overset{\beta}{p}^{1.2.3.4.5.6}; \overset{a}{p}^{1.2.3},$

then in (3c), over and above the simplification of complexity which is common to all noetic emphases, there appears a developing complexity of marked type, and then we appreciate a definite sense of futureness as existing in connection with the whole noetic emphasis (3c).

When in any one moment there appear to be present several moments, and one of these appears to be qualified by pastness, one by specious presentness, one by futureness; then in one moment the total emphasis is a complex of three minor emphases of a first grade, (3a), (3b) and (3c); and each of these minor emphases of the first grade shows minor emphases of a second grade; so that the highly complex emphasis of the moment may be symbolized thus:

(3b) Pastness.	(3a) Presentness.	
$[\overset{\gamma}{P}^1; \overset{\beta}{p}^{1.2}; \overset{a}{p}^{1.2.3}];$	$[\overset{a}{P}^{1.2.3.4.5}; \overset{\beta}{p}^{1.2.3.4}; \overset{a}{p}^{1.2.3}];$	
	(3c) Futureness.	
	$[\overset{\gamma}{P}^{1.2.3.4.5.6.7.8.9}; \overset{\beta}{p}^{1.2.3.4.5.6}; \overset{a}{p}^{1.2.3}.]$	

What the value of these suggestions may be I am probably not well able to judge. I present this hypothesis thus for the first time, although it was thought out a number of years ago, and during the intervening years has been constantly borne in mind, and has been found in harmony with the facts of our conscious life so far as they appear to my own introspection.

As I have said above, this seems to me to be an opportune moment to present it to my fellows for criticism and suggestion.

HENRY RUTGERS MARSHALL.

NEW YORK CITY.

REVIEWS AND ABSTRACTS OF LITERATURE

Hobbes. SIR LESLIE STEPHEN. English Men of Letters Series. New York, The Macmillan Co., 1904. Pp. v + 243.

The following note by F. W. Maitland appears at the end of this study of Hobbes: "During the last months of his life Sir Leslie Stephen was writing this book. When he could no longer work he asked me to see it through the press. Its readers should, I think, be told that he had some thoughts of adding to it a few sentences about the influence exercised by Hobbes on later philosophers, the French Encyclopædists and the English Utilitarians, and that he gave me some notes, by the aid of which this

addition might have been made. However, before his death I had sent him word that the book was so complete that no second hand ought to touch it. I have only made those small changes that must always be made whenever a book is printed. He expressly charged me to acknowledge his debt of gratitude to three of his precursors; his friend Croom Robertson, Dr. F. Tönnies, and M. Georges Lyon."

The addition of the 'few sentences' to the book might, perhaps, have made it a more satisfactory study of Hobbes than it is. Unfortunately, it contains no definite estimate of Hobbes either as a man of letters or as a philosopher. Yet both these estimates were to be expected in a contribution on Hobbes to the series to which this book belongs. A number of quotations, a cursory mention of his writings in the chapter devoted to his life, and a few scattered sentences suffice for the presentation of his literary side. A chapter might have been given to the subject, for Hobbes's literary activity was wide and varied, his style original and peculiarly strong and vivid. The following sentence, among others, shows that the possibility of a fuller treatment of this subject was not overlooked: "The man, as Robertson remarks, who began his career by translating Thucydides, and ended it by translating Homer, cannot be taken as a simple contemner of literature" (p. 66).

The impression left on the reader's mind of Hobbes as a philosopher is that he was 'a most estimable old gentleman misled by an excessive passion for logic' (p. 215). Indeed, Hobbes is not treated with the seriousness he deserves. His inconsistencies and difficulties are too often exposed as frailties of temperament, even when the same inconsistencies and difficulties appear in many of the greatest philosophical classics. Hobbes' *Leviathan* needs, no doubt, an ideal sovereign to be thoroughly successful, but Plato's *Republic* needs a similar kind of philosopher. It is difficult for Hobbes to explain why science based on definitions should be absolute while definitions are themselves arbitrary. It is equally difficult for Kant to explain why the forms of knowledge should have objective validity and yet be themselves subjective. Yet it is such difficulties as these that are made to cloud the real importance and significance of Hobbes. He is treated in general with a narrow critical and historical setting. Often contradictory estimates are given. For instance, we are told that "the *Leviathan*, once so terrible, may be taken for an intellectual fossil—a collection of erroneous assumptions and sophistries which are confuted in a paragraph or two of the student's text-books" (p. 73). Again: "In fact, Hobbes's *Leviathan* represents what is called 'the modern State'" (p. 204). And again: "As a matter of fact, Hobbes's legal doctrine came to life again in the hands of Bentham and his follower, Austin, the legal lights of the 'philosophical radicals.' Maine observes that they had scarcely anything to add to Hobbes's analysis of the meaning of law" (p. 207). All this is out of harmony with some of the opening sentences of the book: "Thomas Hobbes . . . was the most conspicuous English thinker in the whole period between Bacon and Locke, and his long career, described on the modern scale, would certainly have filled at least a couple of portly volumes. The actual accounts fill only a few pages. Yet, brief as they

are, they give perhaps as distinct an impression of the main outlines of a notable figure as could have been produced by far more elaborate detail. Hobbes himself was obviously convinced—I have reasons for hoping that his conviction was well founded—that a distant posterity would thirst for information about him” (p. 1).

The work is divided into four chapters with the titles, ‘Life,’ ‘The World,’ ‘Man,’ ‘The State,’ and is well indexed. The exposition of the philosophy follows the general lines laid down by Hobbes himself. In the chapter on ‘The World,’ there is a discussion of (1) his starting-point and aims, (2) logic, (3) physical science. The chapter on ‘Man’ is subdivided into (1) psychology, (2) theology, (3) determinism. The chapter on ‘The State’ deals with (1) contemporary controversies, (2) the social contract, (3) the Leviathan, (4) the moral law, (5) the spiritual power. The exposition of the last two chapters is made unduly full of difficulties by complicating it with the bearings of Hobbes’s supposed religious beliefs. For these difficulties are at best the personal difficulties of the philosopher and by no means essential difficulties of this system. They do, of course, throw light on the opposition of Hobbes’s contemporaries.

The life is well written and as complete as possible in view of our meager knowledge of the facts. One does not find, however, the statement that the circumstances revealed by Hobbes’s biography have an important bearing upon an appreciation of his philosophy (p. 70), very thoroughly worked out. Much emphasis is put on his admiration of geometry and on an early conversation on the importance of motion in a theory of sensation (p. 18). In those days it was hardly a mark of distinction for a philosopher to admire geometry, and the conversation can hardly be reckoned among the ‘circumstances of his life.’ The bearing of contemporaneous political events on the peculiarities of his political theories is, however, well worked out. Much is made of the timidity of Hobbes. He was, indeed, very timid, but it is questionable if he deserved this thrust: “A man may refuse to serve as a soldier, at least if he can offer a substitute. ‘And,’ he adds, ‘there is allowance to be made for natural timorousness, not only to women, of whom no such dangerous duty is expected, but also to men of feminine courage’ (they may have been born in 1588)” (p. 195). The fact that some courage was needed to write and publish a book like the *Leviathan* is not noted by way of contrast. Yet the book was, naturally, the reason for timidity. Very few people, not even a Galileo or a Spinoza, were eager for martyrdom in those days. Well written and complete as the life is, one will profit by reading Aubrey and Robertson in connection with it.

The general statement of Hobbes’s philosophy appears to be free from error. It is the emphasis on unessentials, on personal peculiarities and on common difficulties and inconsistencies already noted, which makes the treatment so decidedly unsatisfactory. With these given their proper place, a very clear statement of the general principles and implications of the philosophy is to be found. Considerable space is properly given to Hobbes’s theory of knowledge. Here we find the same insistence on geometrical method which we find in Descartes and Spinoza, and which is

crystallized in Hobbes's terse statement: 'The only way to know is by definition.' The theory is criticised acutely, but so much is made of the doctrine that definitions are 'arbitrary,' that one needs to be reminded that Hobbes insisted not only on the arbitrary and accepted character of definitions, but also on the conditional character of science. For instance, little reference is made to such important statements as this: "There are of KNOWLEDGE two kinds; whereof one is *knowledge of facts*; the other *knowledge of the consequence of one affirmation to another*. The former is nothing else but sense and memory, and is *absolute knowledge*; as when we see a fact doing, or remember it done; and this is the knowledge required in a witness. The latter is called *science*; and this is *conditional*; as when we know, that, *if the figure shown be a circle, then any straight line through the center shall divide it into two equal parts*. And this is the knowledge required in a philosopher; that is to say, of him that pretends to reasoning."¹ Until due recognition is given to such explicit statements, we can have no adequate idea of what Hobbes meant by calling science at the same time absolute. Indeed, it is just here that we find the source of his dogmatism. He thought it useless to attempt to frame a universal conclusion from premises with different interpretations, and absurd not to accept one which was drawn from admitted definitions. He sought everywhere systematic consistency. It may be urged that he did so at the expense of the fluidity of the processes of acquisition. Yet his ideal is certainly worth serious consideration, especially in a time like ours, when this same fluidity is given as a reason for inevitable confusion in systematic thinking. Little is to be lost by emphasis on logical rigidity. It is our means of correcting our definitions.

The author points out that we owe nothing to Hobbes's physical theories. Due prominence is given to the doctrine of movement in psychology, but the similarity in aim and method in his psychology to that of recent tendencies should have been emphasized. In this respect a modern psychologist finds greater kinship with Hobbes than with Locke. His method is physiological. He did not experiment, but it is quite evident that he paved the way for profitable experimentation. In short, with him psychology was most emphatically a natural science.

The exposition of Hobbes's moral philosophy is accurate as far as it goes, but it is inadequate. The moral philosophy is easily dismissed by characterizing it as 'egoism.' It is egoism, perhaps, but this view may vary widely in the hands of different thinkers. Undoubtedly Hobbes traces all morality and all civic regulations back to the individual's hopes and fears, but he insists with unqualified emphasis that the individual, as such, affords no bases whatever for moral judgment or action. It is only in organized society that morality can exist and have meaning. There can be no obligation when the only person to whom the individual is obliged is the individual himself. Self-interest may lead to morality, but when once we have a moral law, self-surrender and obligation are imperative. Further, it is a mistake to suppose that Hobbes re-

¹ 'Leviathan,' chapter IX.

gards the individual as naturally selfish in any other sense than that his acts are the natural expressions of his individual character. Individuals, as he conceived them, differ widely in 'manners,' or character. They can attain their appropriate satisfaction only by realizing, as far as possible, their natural tendencies. They may be as 'unselfish' as the most ardent altruist could wish. So, too, an individual may be moved by sympathy, but Hobbes insists that he is not so moved unless he is naturally sympathetic. It is quite evident that the author of this book, in dealing with these questions, would have done well to have borne more effectively in mind Hobbes's doctrine that 'the only way to know is by definition,' for the definitions of the author and the philosopher are far from being the same on these controverted points. It is true that Hobbes's estimate of the 'natural man' is not high, but he is by no means unique in that. On the other hand, he estimates the civic and moral man as responsible for all the benefits and glories of civilization.

The author is undoubtedly correct in pointing out that the majority of moral philosophers do not accept Hobbes's identification of the moral and the civil law, although here, again, the importance of definition is not to be overlooked. Hobbes aimed at a moral philosophy which should be definite and positive. It becomes, thus, in his hands, simply the morality of positive law. Where there is no law, there is no transgression and no obedience; and no law is binding unless one is really bound to it. Hobbes could not conceive that a person is morally bound to do a thing which he could leave undone without incurring punishment from some one who had the acknowledged right and power to inflict it. He would find the definition of obligation as 'the binding force of an ideal' quite meaningless when judged in the light of moral practice and ascertainable and unequivocal obligation. Nothing can bind unless it is commanded, and no man can, in strictness, command himself. In all this, Hobbes, as the author points out, is careless of the richness of the moral life as it is to-day conceived by many. Yet Hobbes's moral philosophy remains one of the strongest pleas for positive morality, an unflinching insistence on respect for law as such, a vigorous protest against the doctrine that the individual's obedience to positive law is to be construed in the light of his liking for it and not in the light of the power which can enforce it. This may be an inadequate doctrine, but it is not simply the logic of an 'estimable old gentleman.' It may sound brutal and do injustice to the finer moral feelings, but it is most wholesome. It may make no account of the unwritten laws of public opinion, but it has the merit of being definite. It may be presented with too great confidence that it has been demonstrated, but it is far from being absurd. Indeed, ethics to-day would profit much more by a renewed analysis of moral action in the light of positive law than by continuing to discuss the rival claims of intuitionism and utilitarianism.

The author's analysis of Hobbes's distinctly political theories in their application to practical government and historical practice is the most satisfactory portion of the book. The limitations under which Hobbes labored through ignorance of the history of the growth of institutions and

through the pressing controversies of his own day, are clearly exhibited. Two quotations may serve to bring this out. "Hobbes . . . is not arguing for one form of government more than for another. He prefers monarchy; but his special point is that in every form, monarchistic, aristocratic, or democratic, there must be a 'sovereign'—an ultimate, supreme, and single authority. Men, he says, admit the claim of a popular State to 'absolute dominion,' but object to the claim of a king, though he has the same power and is not more likely, for reasons given, to abuse it. The doctrine which he really opposes is that of a 'mixed government'" (p. 198). "Hobbes's dislike to popular rule may be due in part to a certain intellectual difficulty. A sovereign must needs be a unit. But Hobbes is not comfortable with abstractions, or with so vague a body as the sovereign in a complex political system. He likes to have a king—a concrete, tangible individual in whom his principles may be incarnated. This prevents him from recognizing one development of his theory which none the less was implied from the first. He perceives with perfect clearness and asserts in the most vigorous way that the division of sovereignty was the real weakness of the English system. His prejudices lead him to throw the whole blame upon the popular leaders. But a man of science should see that it is little to the purpose to blame individuals. Their discontent is a fact: a philosophical reformer should aim not at denouncing the symptoms, but at removing the causes of discord. It was clearly hopeless to persuade either side that it was in the wrong; but he might have tried to give an impartial diagnosis of the disease. He might then have admitted that the true solution might be, not to give the power of the purse to the king, but to give the power of the sword to the parliament. If he had contemplated that proposition, he might have foreseen (I do not mean that any human being could wholly have foreseen) that his theory would apply to a radically changed order" (p. 203).

FREDERICK J. E. WOODBRIDGE.

COLUMBIA UNIVERSITY.

An Examination of the Rationalistic Attitude. GUSTAV SPILLER. *The International Journal of Ethics*, July, 1904. Pp. 488-496.

The average rationalist is so impressed by the evils of superstition that he decries emotion and will, forgetting that his own appeal in behalf of reason is evidently directed to the emotions of his hearers. Reason itself arises only to meet the demands of our complex practical needs and must be at all times the instrument of these. The love of reason is only one of the many justifiable passions of the soul. The rationalist is usually concrete and negative, advocating, not the pure love of reason in all its manifestations, but the abolition of unreason as embodied in some supernatural religious system, forgetting that the destruction of this but leaves the field open to the host of equally objectionable naturalistic quacks and medicine-men. When 'it is no more the gods who are believed to protect us, it is an endless number of systems of diet, exercise and what not.' Moreover, life is far too complex to permit of action based only upon rationally

proved certainties. Indeed, the very creation of our rational systems is a matter of subjective selection and interest. "We may agree consequently that the Pragmatist and the defender of Faith are justified in so far as they insist that one may reasonably revere other things than knowledge, . . . and the Rationalist will be justified in so far as he contends that life's complexity and the diversity of men's wants make it imperative that the reason shall be called in to investigate and to decide upon the many diverging claims put forward."

NORMAN WILDE.

UNIVERSITY OF MINNESOTA.

JOURNALS AND NEW BOOKS

THE PHILOSOPHICAL REVIEW. September, 1904. Vol XIII., No. 5. *The Infinite New and Old* (pp. 497-513): J. A. LEIGHTON.—Royce Dedekind Russell and Cantor are wrong in thinking that the infinite defined as a completely self-representative system is any less potential than the infinite defined as a quantity greater than any assignable quantity. There is no demonstration of the actuality of either the old or new infinite. The infinite may indeed exist as the positive and individual limit of the various indefinitely continuable series of experience which, however, in themselves only prove that there is a certain element of self-transcendency in our consciousness. *On the Categories of Aristotle* (pp. 514-528): ISAAC HUSIK.—The author cites numerous passages from Aristotle's works as evidence for the conclusion that "the treatise of the Categories is closely related to that of the Topics, . . . that it was written before the latter and serves as a basis for it upon which it builds, very often going beyond the Categories. This applies to the first nine chapters properly called Categories in the same measure as to the *Postpraedicamenta* . . . Ergo, the whole work is genuine, and its peculiar character is to be explained on the ground of its being one of the earliest attempts of Aristotle." *Proceedings of the Fourth Annual Meeting of the Western Philosophical Association* (pp. 529-540): ARTHUR O. LOVEJOY, SECRETARY.—To the secretary's account of the generally successful nature of the meeting are appended abstracts of the papers presented by Messrs. Ogden, Hinman, Ellwood, Lloyd, Stuart, Lovejoy and Johnson. Discussions: *The physical and the Psychical* (pp. 541-546): H. HEATH BAWDEN.—The author defends his theory of the psychical against the charges of inconsistency and ambiguity brought by Miss Andrus in the preceding number of the *Philosophical Review*. *Professor Bakewell on the Ego* (pp. 546-552): C. A. STRONG.—The author here discusses Professor Bakewell's criticism (published in the preceding number of the *Philosophical Review*) of his view of the Ego and adduces further reasons in support of that view. *Professor Strong on the Passing Thought* (pp. 552-559): C. M. BAKEWELL.—The author defends his previous contention that Professor Strong's view of the Ego is abstract and inadequate. Reviews of Books: Alfred Russell Wallace,

Man's Place in the Universe: JOHN GRIER HIBBEN. A. Donner, *Grundriss der Religionsphilosophie*: E. RITCHIE. John Theodore Merz, *A History of European Thought in the Nineteenth Century*, Vol. II.: A. C. ARMSTRONG. Armand Sabatier, *Philosophie de l'effort*: A. W. MOORE. Summaries of Articles. Notices of New Books. Notes.

REVUE PHILOSOPHIQUE. September, 1904. *De l'Expression de l'Idée de Sexualité dans le Langage* (pp. 225-246): R. DE LA GRASSERIE. The sex-idea appears late in grammar. Gender at first refers to the distinction of living and non-living. Only when the sex-relations become important, as in monogamy, does gender refer to male and female. These two are artificially applied later to things which resemble male or female qualities. Neuter is to feminine as feminine is to masculine. *Ce qu'enseigne une Oeuvre d'Art* (pp. 247-269): P. GAULTIER. — A work of art is distinguished by its style, and its value is that it shows the personality of the artist and the spirit of his time. The subject is the most important factor. *La Sur-Action* (pp. 270-279): M. DAIREAUX. — Apparently abnormal or superhuman action in times of moral transition occurs in three types: simple abnormal action, subjective action without apparent movement, and vivid representation of the action. *Observations et Documents* (pp. 280-284): F. CLÉMENT. — Nietzsche's extraordinary imaginative power in *Thus spake Zarathoustra* was the effect of long unconscious incubation. *Analyses et Comptes Rendus*. Mach, *La Mécanique*, 4^e édition trad.: A. REY. G. Berguer, *L'Application de la Méthode scientifique à la Théologie*: F. PILLON. M. Wartenburg, *Das idealistische Argument in der Kritik des Materialismus*: C. BOS. M. de Wulf, *Introduction à la Philosophie Néoscolastique*: P. ALPHANDERY. P. Grimanelli, *La Crise morale et la Positivisme*: FR. P. P. Shorey, *The Unity of Plato's Thought*: CH. HURT. Th. Valentiner, *Kant und die Platonische Philosophie*: CH. HUIT. J. F. Nourisson, *Rousseau et la Rousseauisme*: F. PILLON. A. Eymin, *Médecins et Philosophes*: CH. BLONDEL. L. Figard, *Un Médecin Philosophe au XVI^e siècle*: P. C. E. Troile, *La Dottrina della Conoscenza nei moderni precursori di Kant*: J. SEGOND. B. Erdmann, *Historische Untersuchungen ueber Kant's Prolegomena*: J. SEGOND. J. T. Merz, *History of European Thought in the 19th Century* (Vol. II.): G. M. R. Adamson, *The Development of Modern Philosophy*: A. PENJON. W. Wundt, *Gustav Theodor Fechner*: FOUCAULT. Revue des Périodiques Étrangers. Livres déposés.

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NOTES AND NEWS

THE Section of Anthropology and Psychology of the New York Academy of Sciences met in conjunction with the New York Branch of the American Psychological Association, on Monday, October 24, at the American Museum of Natural History, in New York. The following papers were read and discussed:—'The Correlation between Motor-Strength, Quickness and Accuracy': Dr. R. S. Woodworth. 'Some Problems of the Fringe of Consciousness': Dr. Irving King. 'A Comparison of the Mental and Physical Resemblances of Twins': Professor E. L. Thorndike. 'The Nature of Consciousness': Professor F. J. E. Woodbridge.

THE lectures given by Professor de Vries at the University of California, during the summer of 1904, are being edited by Dr. D. T. MacDougal and will be published by the Open Court Publishing Co., of Chicago, in January, in a volume entitled 'Species and Varieties; their Origin and Mutation.'

PRINCIPAL C. LLOYD MORGAN, of the University College, Bristol, England, addressed the Psychological Journal Club of Columbia University on November 4.

FOSTER P. BOSWELL, Ph.D. (Harvard, 1904), has been appointed assistant in psychology; and Edwin Lee Norton, instructor in philosophy, in the University of Wisconsin.

THE JOURNAL OF PHILOSOPHY

PSYCHOLOGY AND SCIENTIFIC METHODS

NOTE ON THE PHYSICAL WORLD-ORDER. II

HAVING defined a *physical science* as *one which employs in its description of nature only such terms as can adequately be defined by the use of the measuring rod*, it was shown in what sense sciences recognized as physical fell under this definition. The question, What sciences, if any, do not fall under this definition, led to the further question, What does it mean to say that a phenomenon is inexplicable in physical terms?

By way of leading up to this special question let us ask a more general one: When is any phenomenon shown to be inexplicable in terms of any given law? That we do constantly assume phenomena to be inexplicable in terms of the given law hardly needs illustration; but to give one,—the turning of a galvanometer needle under the influence of a current is said to be inexplicable in terms of the law of gravitation. But why?

Here we must go step by step, and let us begin with a very simple case. If I dip the end of a capillary tube into a tank of water, the water will rise in the tube and remain stationary at a certain distance above the level of the water in the tank. This phenomenon is described as a case of capillary attraction, and it was once supposed that capillary attraction might be explained in terms of the law of gravitation. It is now generally admitted that no such explanation is possible. In what does the proof of this impossibility consist?

To say that the rise of water in the capillary tube can not be the result of gravitation would at first suggest nothing more than the perfectly evident reflection that the mass represented by the little column in the tube can not be repelled from the center of the earth in conformity with a law which provides for the attraction of masses. But with this obvious conclusion might come a new suggestion: if we consider the walls of glass and the column of water to be made up of molecules of glass and water respectively, could we not make such hypotheses respecting the masses and the interstitial distances of these molecules as would reveal the rise of a mass against gravity to be really a case of the same law of gravitation? The question is

meaningful, and if we are at liberty to distribute the masses and the distances without further restriction than that the sum of the molecular masses should equal the gross mass, the spatial arrangement of the molecules conform with the gross dimensions of the bodies, we should, no doubt, be able to explain the phenomenon of capillarity on a gravitational basis. But the question at once arises, Are we free to distribute masses and assume distances without other restrictions than those mentioned? Such might be the case if the phenomenon of capillarity were the only one which led us to assume a molecular structure of bodies. As it is, however, the size of molecules and their distances have been fixed by observations quite independent of the phenomenon of capillary attraction, and they have been fixed in such a way that, without revolutionizing the rest of molecular physics, those particular phenomena can not be explained in terms of the law of gravitation.

This, then, is the sense in which, in the actual pursuit of science, we say that a given fact can not be explained by a given law. But it will be remarked that this demonstration is of a somewhat hesitating kind. So much depends upon our definition of the phenomenon we are called upon to explain. Define it in one way, it is inexplicable; define it in another way, it is explicable. These two or more ways of defining a phenomenon are necessarily consistent, but they are sufficiently different to make it possible to return the answer *yes* and *no* to the same question. How can we ever be sure that we have obtained a final *no* to the question: Can such and such a phenomenon be so and so explained? The most that we can say is this: the given phenomenon can not be explained by the given law, *unless* we describe the phenomenon in a way which would only be permissible in case we made changes of such and such magnitude in our accepted scientific conceptions. Nevertheless, let us take this demonstration of the inexplicability of a given phenomenon by a given law as the nearest approach we can make to absolute demonstration: let us admit that it offers all that can be demanded of such a demonstration. The question arises, Under what conditions has it a meaning to ask for such a demonstration of inexplicability?

If I mix a kilogram of water at 50° C. with a kilogram of water at 100° C. without allowing any heat to escape, the resulting mixture will have a temperature of 75° C. Can this phenomenon be explained by the law of gravitation? It seems absurd to ask such a question. We no longer seek to demonstrate the impossibility of the explanation demanded: we are satisfied with an immediate insight into the meaninglessness of the proposition. Evidently, we say, it is impossible that a phenomenon for whose description we require the term 'temperature' should be susceptible of explanation by a law in which the term

'temperature' does not even occur. Capillary phenomena may not be explicable by the law of gravitation, but they are at least describable in the dimensions of that law, to wit, the dimensions mass, length, and time. It is therefore meaningful to ask whether such phenomena be explicable in terms of this law, and we require a demonstration of the law's failure to explain before we answer in the negative. But the suggestion that a phenomenon describable in one set of dimensions should be explicable by a law applying to another set of dimensions, is one that it would occur to no one seriously to offer.

If it be meaningless to ask for a mechanical explanation of the phenomena of heat, so long as these phenomena are described in terms of temperature, there is, nevertheless, a way in which we may redescribe the phenomena of heat without making use of this non-mechanical term, and when we have so redescribed the phenomena the search for a mechanical explanation of them no longer presents an absurdity. Suppose in our example we were to describe the water of higher temperature as a body whose molecules were vibrating with a certain average velocity, and the water of lower temperature as one whose molecules were vibrating with another and lower average velocity. Now let us picture to ourselves that in the mixing of these two masses of water the redistribution of velocities takes place according to the known laws of impact of elastic bodies, giving a mean average velocity for the mixture. We should then have given a mechanical explanation of the phenomenon of mixture, having first, however, given it a mechanical description.

The moment it becomes meaningful to ask whether a phenomenon be explicable in terms of a given law, at that moment it becomes necessary to demonstrate the impossibility of such an explanation before accepting a negative answer to the question. The search for the mechanical explanation of physical phenomena is one of the significant movements of physical science, and we observe the conditions to the success of this search. They are, first, the restatement of the problem in mechanical terms; and second, the finding of a law in which these terms may be connected. We have seen (in the example of the phenomenon of capillary attraction and the law of gravitation) the sense in which a phenomenon describable in mechanical terms may be demonstrated to be inexplicable by a *given* law connecting such terms. We now ask whether any such demonstration could be given of the impossibility of the more general task of explaining a given mechanical phenomena in terms of *any* mechanical law. In the first case the demonstration was one only when we placed upon ourselves certain restrictions as to the nature of the assumptions that could be made. In the present case, too, demonstration would evi-

dently be possible only in case we were able to find similar (though perhaps much broader) restrictions. If, for example, we were to understand by a mechanical explanation not merely one that was conceived in terms of mass, length, and time, but further one that was required to conform to particular axioms (the axioms, say, of Newton's mechanics), it is conceivable,—yes, it has even been suggested,—that certain physical phenomena could receive no mechanical explanation. But if we free ourselves from all restrictions, it follows from what has gone before that no such demonstration would be possible. It would, therefore, be meaningless to make the hypothesis that a mechanical phenomenon was inexplicable in mechanical terms. It would evidently be equally meaningless to make the no more restricted hypothesis that a given physical phenomenon, *i. e.*, a phenomenon capable of physical description, was inexplicable in physical terms.

We have now seen in what cases it is meaningful and in what cases it is meaningless to make the hypothesis that a given phenomenon is inexplicable in terms of a given law.

1. If inexplicable is to mean anything more than unexplained, we must intend the inadequacy of the type of explanation sought to be demonstrable.

2. We see that such a demonstration could have a meaning, although a relative one, in case we were required to explain a phenomenon describable in certain terms by means of a special law connecting these terms (*e. g.*, to explain capillarity by the law of gravitation).

3. Under this head would fall also the case in which we were required to explain a phenomenon describable in one set of terms by a special law connecting another set of terms, provided we were first able to redescribe the phenomenon in the terms of the law (*e. g.*, the case in which we were asked to explain the phenomenon of the heat of mixtures in terms of the law of impact of elastic bodies).

4. It is meaningless to seek for a demonstration of the inexplicability by a given law of a phenomenon described in another set of terms without first redescribing the phenomenon in the terms of the law (*e. g.*, to seek a mechanical explanation of the phenomenon of the heat of mixtures, described in terms of temperature).

5. And finally, it is meaningless to ask for a demonstration of the inexplicability of a given phenomenon in terms of a law upon which no restriction is laid (*e. g.*, the inexplicability of mechanical phenomena in terms of mechanical law, of physical phenomena in terms of physical law).

We may now apply these results to the problem of human conduct as exemplifying a phenomenon the possibility of whose physical

explanation has been doubted. We asked in what sense it had a meaning to make the hypothesis that such a phenomenon was incapable of physical explanation. We have now seen that it can only have a meaning to make such an hypothesis in case it has a meaning to ask for a demonstration of the impossibility that is asserted. Now it is a matter of common experience that the conduct of a human being may be described and explained by means of certain laws,—laws, for example, in which the terms ‘motive’ and ‘character’ occur,—long before it is possible to give any physical explanation of that conduct. Has it any meaning to suggest that the conduct thus described and explained in terms of motive and character may eternally lack a physical explanation? Evidently the case is analogous to that in which we ask for a mechanical explanation of heat without first interpreting the phenomena involved in mechanical terms. The inexplicability is indeed eternal in about the same sense that the problem of finding the number of square inches in a cubic foot is eternally insoluble. But it need scarcely be said that to admit this inexplicability is not to assert that we have found a physical phenomenon which must eternally lack a physical explanation. We have found no gap in the order of the physical world.

The problem is, however, an entirely different one if we state it in the Cartesian way. For Descartes, the phenomenon to which a physical explanation was denied was already described in physical terms, say in terms of a slight displacement of the pineal gland. The hypothesis that such a physically described event should be eternally lacking a physical explanation is, as we have seen, meaningless, for the reason that it can have no meaning to ask for a demonstration of the inexplicability asserted. We may conclude, therefore, that this interesting phenomenon of human conduct offers us no illustration of a possible inadequacy of a physical explanation. It has only been supposed to do so either (1) because it was described in terms that were themselves not physical—in which case physical explanation is neither possible nor is it lacking—or (2) because, although described in physical terms, certain tacit restrictions are placed upon the nature of the physical laws which we contemplate; as when in our example of the boat we tacitly restrict the meaning of physical law in such wise as to include the mechanism of propulsion but to exclude the activity of the helmsman from its possible scope.

This somewhat lengthy analysis of a concrete example will enable us to answer the question that suggested it, to wit, What would a non-physical science mean? There seem to be sciences that formulate laws in terms that can not be defined by the use of the measuring rod. Is then the ability to explain and to predict in physical terms an essentially limited one? Or may the non-physical sciences coexist with the physical without limiting them?

In the light of our previous study I think we can see in what sense the latter may be the case. It might perfectly well be that every phenomenon that was capable of a physical description (*e. g.*, notion of every particle of matter in the universe) was also susceptible of a physical explanation, and yet that such phenomena might be so grouped in new classes as to be equally subject to non-physical description and explanation. For example, any clock or watch is a simple mechanism, every detail of whose behavior is susceptible of a physical description and explanation. Yet there is no common physical description, *i. e.*, no physical definition of a 'time-keeper,' including such heterogeneous mechanisms as a spring-watch, a pendulum clock, a water-clock, an hour-glass, a sun-dial. These are grouped together, not because of their resemblant mechanisms, but because of their common function. Only from this point of view can we speak of a 'good' or 'bad' time-keeper. Now to ask 'Why are dollar watches bad time-keepers?' is a question to which the answer, 'because of their cheap construction,' would be satisfactory. The general rule 'cheap watches are poor time-keepers' is a true law, but neither 'time-keeper,' 'poor,' nor 'cheap' is a term of a physical nature. Yet in a watch that keeps 'poor time' there is some physical condition, explicable by physical laws, which is not to be found in another resembling watch that keeps 'good time.'

Just so, to pass from our homely example to the general case, whole sciences may be constructed whose objects of study have no common physical nature, hence no common physical definition, and which formulate laws governing the (non-physical) behavior of those objects in non-physical terms. It would be none the less true that *each* object was composed of particles of matter, and that each particle was subject to physical law. For example, it is readily imaginable that all attempts to find a physico-chemical definition of living organism should fail. Is there any more reason that they should succeed than that all clocks should be susceptible of subsumption under a single mechanical definition? A living organism may be so called because of a peculiar function it fulfils, in spite of the complete heterogeneity of the physical means which are employed in the fulfilling. Should we expect, then, a science, whose object of study is the living organism, to formulate laws in physical terms? On the contrary, we should expect to find just such terms as 'habit,' 'variation from type,' 'selection,' 'struggle,' appearing in accepted explanations. But that is no reason whatever for doubting that every bit of matter that enters into a living being behaves in a way that is explicable, as it is describable, in physical terms.

To conclude then this sketch of the physical world-order and its

relation to the whole of natural phenomena: The definition of physical science here offered makes it the science of space detail. The hypothesis that every phenomenon describable in physical terms is incapable of explanation in such terms is a meaningless hypothesis; but we need not conclude from this that the physical is the only science. The physical details of nature may perfectly well be grouped in classes that are incapable of physical definition; for objects thus described non-physical laws may be developed. The same object, therefore, may be capable of a double description. Any given human body, *e. g.*, is made up of particles whose only description is physical. As so described its behavior as a whole is the resultant of the behavior of its parts, and is susceptible of physical explanation. This same human body is capable of classification with other human bodies, animal bodies, organisms, etc., whose common element is not physical. As so grouped its behavior is not physically described, and so can not be physically explained. Yet this fact represents nothing indeterminate in the physical world-order.

EDGAR A. SINGER, JR.

UNIVERSITY OF PENNSYLVANIA.

THE MEANING OF ANALYSIS

I SUGGEST that before we proceed to analysis in psychology we obtain a clear idea of what we mean by analysis. A definite fixing of a meaning may at first seem hampering and ideas of course run into one another, but in the long run we shall gain by a more accurate cutting of our words.

I shall consider it advantageous and not a confusion of spheres nor an unlawful transferring of analogies, if we can give definiteness by the use of visual forms. Such visualizations help us to mutual understanding more than word definitions, provided we are careful to remember that these forms are mere forms, have no control over experience and are to be used only in so far as experience fits into them.

I. THE VISUALIZATION OF DIVISION

The word analysis, as popularly used, is identical with division or separation, or in its simplest form with subtraction. Its usual visualization in this sense is a group of points or, when the points are arranged for easier manipulation, the visualization is the line divided into parts, *ac*, divided by *b* into *ab* and *bc*:

FIGURE 1.



With this view a number is thought of as an aggregation of units. There is nothing in this form to show that the parts are in any necessary relation to one another. They are as able to stand by themselves as in the whole, and there even creeps in the implication that the whole is merely the sum of the parts; *ac* becomes a mere name. Therefore the parts seem more real in contrast with the artificial wholes. The result of applying this mathematical form to experience is pluralism, atomism, Monadology, etc.

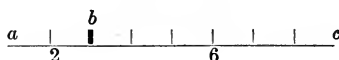
How then, it may be asked, have we the current 'monistic' systems obtained by this form of analysis? The reply is that the current idealistic and 'scientific' monisms are monistic only in contrast with the dualism of subject and object, which was reached by this same divisional analysis. Although the unabridgeable parallelism of the subjective and objective is overcome by regarding the one or the other as phenomenal, yet both idealism and materialism are ultimately pluralistic and not monistic. The fact of memory seems to save idealism from being pluralistic, but this is a position reached independently of, we may say, in spite of the conclusions of analysis.

The application of this divisional formula to the experience of space gives the corresponding view that space is made up of an infinite number of real points.

II. ANALYSIS INTO COORDINATES

There is, however, another mathematical visualization which, although including division and subtraction, does not lead to the scatteredness and disintegration that result from the method of division. This is analysis into *x* and *y* coordinates; and it is this geometrical meaning of analysis which I believe it would be of advantage to hold to strictly when the word is used in psychology or in experience anywhere. As has been said, if we wish to divide 8 into two parts, say 2 and 6, which make it up, we can make a picture of a line *ac* and divide it at *b* into *ab* and *bc*.

FIGURE 2.



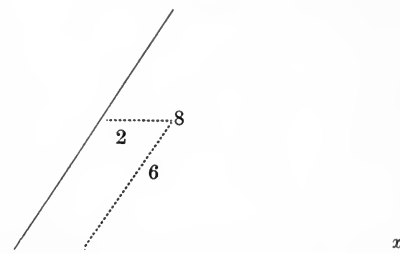
In this picture the fact that the two parts are necessarily parts of the whole 8 does not appear. They are perfectly able to stand by themselves and the 8 has been lost.

I understand an analysis to differ from a simple division, in that the mutual relation of the parts to the whole is not lost. The integrity of the whole is retained. In mathematics, the analysis of 8 into the two parts 2 and 6 may be illustrated by regarding the 8 as a

whole made up of two coordinates (Fig. 3) which have a meaning only because they together make up the 8.

In this visualization the 8 is defined by its relation to two axes, x and y . Their purpose is to afford a fixed standard by relation to which any point may be defined with regard to other points, therefore the angle between them is for the purpose of illustration, a matter of indifference.

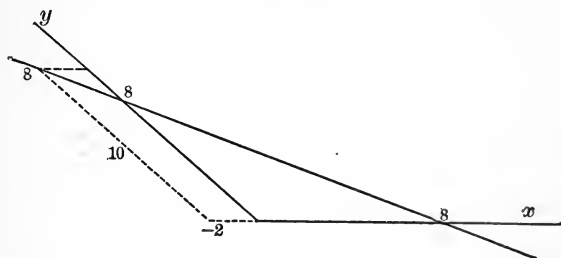
FIGURE 3.



If we wish to express the more general analysis of 8 before we have determined the values of 2 and 6, we shall have the general equation $8 = x + y$, or the equation of the straight line which cuts the x and y axes at the distance of 8 from the intersection. At every point, however, the 8 stands for itself and is not made up out of the parts.

With this process in mind, we shall picture a number not as a group of points nor as a series of points laid off upon a line, but the picture of 8 will be the line cutting the x and y axes at 8 (Fig. 4).

FIGURE 4.



Such a line represents the full content of 8 and moreover shows its relation to all numbers, for by extending the x axis in the minus direction we have $8 = 10 - 2$, etc.

Now turning back to the more customary and perhaps genetically the more original picture for representing a number divided into its parts, namely a straight line (Fig. 2), we shall see that it serves its

purpose as well as it does because it is a particular form of the more general picture which we have given above. In this particular form, the x and y axes have been made to diverge more and more until finally the y axis has become a continuation of the x axis (Fig. 2). We still have $8 = 2 + 6$, but the coordinates are identical with the axes, thus assuming a fundamental character and moreover they coincide with the line of eight which thus, instead of preserving its intactness, is lost and seems to be made up of the parts.

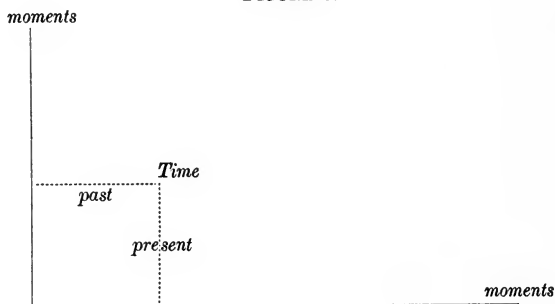
It is the purpose of this paper, therefore, not so much to controvert the popular conception of analysis as to broaden it and to give to analysis its full content and meaning. In this interpretation of analysis, then, I would call attention to the following points:

1. The initial whole is never lost. The 8 retains its integrity and yet full justice is done to the parts 2 and 6, which in turn may be similarly analyzed.

Those who have attempted to reach a conception of unity through the method of division will appreciate a method of conception which never loses the initial unity.

If we are analyzing time, it is very often important to remember that time, though made up of moments, is still a whole; as is adequately represented in Fig. 5.

FIGURE 5.



2. In this conception of analysis, the 6 has a meaning only together with the 2 in making up the 8. The 6 is real, likewise the 2, but only in reference to each other and the 8. (The fact that they are abstractions from the concrete 8 does not affect their reality. The word abstraction is not to be used as a contrast to reality.)

If we keep this picture carefully in mind we shall not be in danger of neglecting a part, in conjunction with which alone the other part or element has a meaning. As for instance some psychologists do, which out of an analysis of consciousness find the will as an element, and then a few pages later we find this will grown quite in-

dependent and walking about by itself as an unconscious will or a subconscious will.

The 6, if derived from the 8, has a meaning only together with the 2 and with reference to the 8.

3. If we keep before our eyes this visualization of the process of analysis, we shall not attach any importance to a word which originated as a factor in an analysis, but which is continued after the corresponding factor, with which alone it has a meaning, has been rejected. We have not the right to keep on employing an analysis after we have rejected one of the legs.

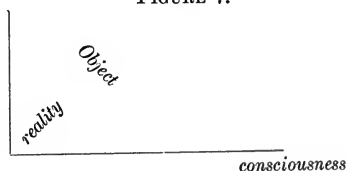
FIGURE 6.



The importance of this point may be illustrated by the *Ding an sich* or object which the idealist rejects as an unreal abstraction but continues to retain the subject. He lets the subject factor encroach more and more over the object side till the object is reduced to 0.

It is further illustrated by the consciousness which the materialist would reject as an unreal abstraction, letting the object encroach on the subject.

FIGURE 7.



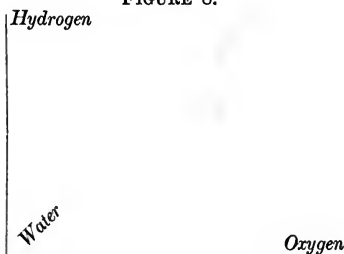
With the divisional conception of analysis the zero can be neglected; with our conception, as shown in Figs. 6 and 7, it can not, for zero is a limit approached but never reached.

A somewhat similar overlooking of essential correlatives is the fault of the sensationalists from Condillac down to Mach. They analyze experience into perceptions of things, and then perceptions of things into sensations and call the last the ultimate. In each step one of the legs of the analysis has been neglected. They might just as well go on and as a next step analyze, with the materialists, sensations into wave motions, for in this step they would neglect no more important factor than they already have in reaching sensations by analysis as simple elements.

4. This form of analysis with its x and y coordinates has the advantage of serving as a framework when we have not yet determined the value of the constituent elements; for instance, in an analysis of water.

Such diagrams do not explain anything. They do not solve the problem of the like and unlike or of unity and plurality. They rather dissipate the problems. They give a picture making grasp-

FIGURE 8.

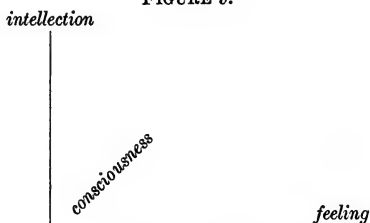


able what might otherwise present unsurmountable difficulties to our thinking and enable us to proceed.

5. This framework makes possible an analysis in which the parts are dependent yet variable.

In consciousness, for instance, feeling and intellection are independent variables, yet there is no feeling without intellection and no intellection without feeling, all of which is represented in the above figure. The word feeling extends clear across, approaching zero at

FIGURE 9.



the line of intellection. Just as, in Fig. 3, by varying the scale and the proportion of the parts any point in the plan may be regarded as 8, so here in Fig. 9 the general form is to regard the whole plane as representing consciousness till a unit has been determined for the analysis.

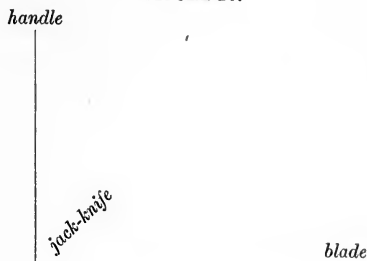
6. The word synthesis is given its true meaning in relation to analysis. Every analysis contains in itself a synthesis.

The following may elucidate the general position (Fig. 10). In case we are analyzing a jack-knife, the handle is not a handle save

in respect to the blade, and both have meanings only in respect to the whole.

Both the handle and the blade are abstractions. Independently of its relation to the jack-knife, the handle as a different fact of expe-

FIGURE 10.



rience may be considered also as composed of horn and brass, and the blade may be also a part of pig iron, and so on.

As has been said, the fact that a thing is an abstraction does not affect its reality in the sense in which we are using the two words. The counterpart to the abstract is the concrete and not the real.

III. APPLICATION OF THIS MEANING OF ANALYSIS

I feel justified in maintaining that this mathematical form of analysis which preserves the relation of the parts to the whole and the integrity of the whole is more applicable to the facts of experience and less open to contradictions than the form of simple division which is often called analysis and that moreover the distinction is important enough to be worth insisting upon.

1. In the first place it corresponds to and fully represents our experience of space. Space as experienced is not abstract nor an abstraction, nor is it a composition, but as a whole it is a concrete in comparison with which the particular parts are abstract. I use concrete as meaning more immediate and the word abstract as more derived. A particular line or square before me is not more concrete but rather more abstract than the experience of space as space. In such cases we must not compare this particular square before me with remembered space or conception-space, but realize that it is only a part of or an abstraction from present experienced concrete space.

2. In the second place, it more truly represents the analysis of chemistry. We will dwell a little upon this point because chemical analyses might, perhaps, be brought forward as contradicting the meaning of analysis which we are trying to establish. For most purposes in chemistry it is sufficient, using the idea of division, to

regard O and H as independent atoms, containing in themselves at least potentially all the characteristics which produce water. When, however, the chemist wishes to avoid metaphysics, he must remember that hydrogen is, only in its relation to other similarly derived atoms. Compare Fig. 8. So H and O have a meaning only in their mutual relation, and in all their relations as parts of all the substances into which they enter. When we think of H, the O seems to be entirely gone, but this is only a seeming, for an inalienable part of the reality of H is its relation to O and the whole reality of H is its relation to all other elements. This fact our picture of analysis prevents us from overlooking.

3. The importance and truth of this meaning of analysis and its wide applicability to experience is illustrated in the third place by the parallelograms of forces in mechanics, which I think we have a right to regard as a development of this form of analysis.

To analyze the force 5, we must use the square of 5, because the force varies as the square of the distance. Figs. 11 and 12.

FIGURE 11.

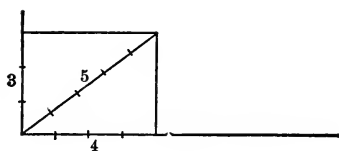
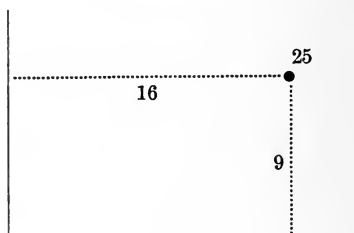


FIGURE 12.



The square of 5 is 25, which, analyzed, gives 9 and 16 or 3 and 4, for the component forces. The complete analysis of the force 5 would be represented by the line of 25.

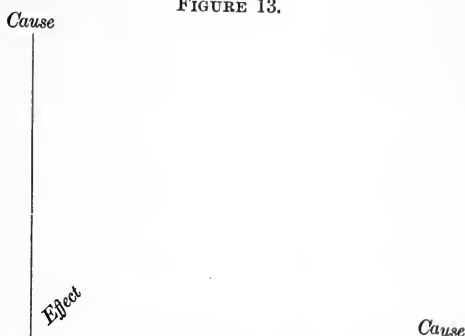
4. In the fourth place the universality of this conception of analysis is evidenced by its applicability in physics to illustrate the analysis of an effect into its causes, Fig. 13.

An effect is therefore a substance, as water is, which we analyze into its elements. This is more than a mere convenience, bringing chemistry into line with cause-effect relations; it becomes an indispensable form when we come to combat the idea that it is the law which produces the effect. The law is merely the result of the analysis of the effect. The law of causation is not a *vis a tergo*. It never pushes into the future.

It is misleading to take the cause which is chronologically prior as the logically prior. Logically the cause is the result of analyzing the effect. From the standpoint of science it is the possibility of

analyzing out the cause of an effect which keeps the relation between the two from being a mere sequence like that of day and night. In the difference between the relation of day to night and that of an effect to its cause, we have a good example of the difference between a division and a proper analysis. Höfding calls the former the

FIGURE 13.

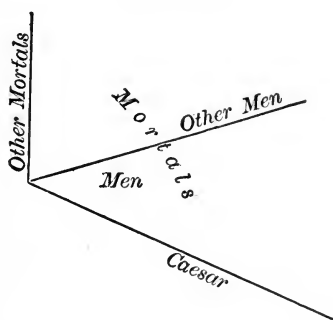


empirical conception of causality and the latter the ideal conception ('*Philosophische Probleme*, p. 17).

5. In the fifth place as a justification for this conception of analysis I would point out that this form alone adequately represents analysis in logic.

In Fig. 14 the concept mortals is analyzed into men and other

FIGURE 14.



mortals; and then as a second analysis the concept men is analyzed into Caesar and other men, giving the conclusion Caesar is a mortal. By regarding the minus side as negative, all the syllogistic forms can be readily illustrated. The diagram can apply to the intension as well as the extension of terms.

A logical proposition then is one leg of an analysis, the other leg

of which is implied, the triad thus forming the epistemological unit. Logical analysis falls into line with chemistry and mathematics, and this through no forcing of an analogy, but through the use of a single mathematical form to make graspable a great variety of experiences. This interpretation of logic is not to be confused with the realism of the schoolmen. The general term is not more real than the particular, but it is more concrete. The greater concreteness or immediateness which the particular term like *Cesar* seems to have is due to the many other relations which it has. In comparison simply with the term *men*, however, it is more abstract or derived.

6. Finally this meaning is of importance in psychology where we must insist upon 'consciousness,' or 'the Given,' or 'experience' as the primary concrete of which all the so-called elements are in comparison abstractions. That is to say compared with this primary concrete, the subject and object, the ego and the non-ego, the I and the it, the will, the feeling and the intellect are abstractions derived by the process of analysis. This primary concrete (the 'social-consciousness,' 'pure experience,' the 'absolute') is not a deduction nor an induction, nor a composition, nor an hypothesis; it is the point of departure.

After we have determined upon a meaning for analysis we shall be ready to proceed to the use of analysis in psychology and, if consciousness be the best point of departure, to an analysis of consciousness.

GEORGE R. MONTGOMERY.

CARLETON COLLEGE.

DISCUSSION

RELATIVITY AND REALITY

THERE is of course a connection between the recent discussion of relativity or phenomenality and the efforts to define infinity. This connection, too, has been frequently felt and almost as frequently directly avowed by those who have been parties to the different controversies. Simply the antithesis of the real and the relative, and the antithesis of the infinite and the finite present essentially the same fundamental problem to the philosopher. In this paper, or rather in this brief note, only the former of the two antitheses is the object of direct interest; but at the close a suggestion or two will be ventured in regard to the latter.

Even at the present time, and also even among the more prominent thinkers of the present time, the idea that the relative and the real must somehow exclude each other is very much in vogue. True, an adequate philosophy of evolution may seem to demand their

closest intimacy, but philosophy can hardly be said to have taken evolution and its peculiar demands with the seriousness that might have been expected. I do not undertake to say whether the scientist or the philosopher is most to blame for this, but the indifference or the only half-hearted or half-minded attention to evolution appears to me beyond question. Take, in evidence, Mr. Bradley's 'Appearance and Reality.' Some may object that this work already belongs to the past, and certainly the discussion that it has stirred up might be expected to have accomplished something towards relegating even so important a book. But suffice it to say that the discussion is not yet at an end, and the strenuous zeal in numerous quarters to keep the phenomenal and the real, the theoretical and the practical apart, the determination from one reason or another to hold the will aloof, or the struggle to bolster up an epistemological or a psychological or an ethical and spiritual pluralism is excellent evidence that the thinking of the day has not succeeded, satisfactorily to itself, in finding a suitable resting-place for reality in this world of what seems so hopelessly relative.

Possibly reality also 'hath not where to lay its head.' Possibly philosophy is bound to seek, but never find harmony between what is relative and what is real. The latter possibility, however, belies its own contention, since seeking and finding are inseparable, while the former possibility only suggests that to lack a resting-place or a habitation may be as significant metaphysically as it has been theologically or spiritually, and this without any prejudice whatever against the idea of the real being immanent in the relative. Moreover, for my own part, I very strongly feel that the present failure to bring the real and the relative into their true intimacy has been in large part unnecessary, and Mr. Bradley is conspicuous for his needless failure. He is so nearly, if not quite, blind to the real meaning of premises which he has himself stated very clearly.

Thus Mr. Bradley has argued from relativity to phenomenality; yet he is quite insistent that all relationship always implies difference both without and within that which is relative, and this implication certainly shows something in and with the relative that transcends the merely relative. To the same conclusion of phenomenality he has argued from the hopeless, endless regressus involved in any distinction, for example, in that between relation and quality, either party to the distinction being itself divided within itself on the same plan or having within a one-to-one correspondence with what is without, like Royce's perfect map of England, which must include itself, and its included self, and so on, *ad infinitum*; yet differences, each one of which includes the differentiation, must have at least some positive share in the reality of the whole which they comprise.

They may be as 'relative' as you please, they may be hopelessly lacking in that pet-conceit—really a dreadful bug-a-boo—of the hypostatical thinker, namely, in self-identity; but so much the better, for the one-to-one relation or the lack of self-identity which this relation implies, instead of keeping them out of the kingdom of reality, holds them forever in it. Moreover, as regards Mr. Bradley, were his differentiated differences not thus partners in a divided labor of comprising and maintaining reality, it is very hard, indeed, to see how he could have gone even as far as he does in the second part of his book towards restoring reality to human life and experience. And, lastly, Mr. Bradley has argued to relativity and phenomenality from the universally contradictory or paradoxical character of all experience. In fact this argument he relies on almost *ad nauseam*, and it is plainly only a special form of the argument from differentiated differences. Contradiction or paradox is only difference at its extreme. Yet, again, in the light of what he himself has said in his second part one has to marvel that he has failed to see, or has seen only with such slight appreciation, that just the inner difference, or the paradox, of any particular experience saves it, relativity and all, from having no positive part in, or contact with, reality. The inner difference not merely puts it, as has been said, *en rapport* with the totality of things, but also, especially through the proneness to paradox, or extreme self-opposition, insures a multiplicity of other experiences to balance and restrain the individual experience or say a conserving reaction or counteraction for the particular action. The great function of difference is balance, counteraction, conservation; and paradox, as it is manifested, only shows that in experience there moves a principle of integrity, a spirit of wholeness, that forever militates against mere phenomenality.

The idea intended here is this, though the virtual repetitions that follow may be unnecessary: Any particular thing or any particular experience which is divided against itself or whose own inner divisions have that one-to-one correspondence with the totality of the things among which it belongs, is therein and thereby saved from the disaster of mere relativity and phenomenality, for its own inner divisions correct its isolation and make it the true part of a whole, securing it a share in reality and in the necessary integrity of reality by putting it in vital contact with the whole, while at the same time from the outer divisions it gets positive import for its own individuality. With regard to the last point, metaphysically, as well as morally, an individual inwardly divided against itself through a division that is reflected in the world which includes it can be neither unreal nor insignificant.¹

¹ Kant's *a priori* forms of experience really gave integrity or realistic value to experience, not in spite of, but just because of the antinomies with

But, the significance of individuality aside, if reversing the present standpoint we should start with the integrity and reality of experience as a postulate, that is to say, if we should begin by assuming and asserting, what seems very far indeed from unreasonable, that experience always has positive contact with reality, we could hardly escape from deducing the paradoxical character in experience that Mr. Bradley has made so much of, yet failed to appraise at its full value. How can any experience escape from being formally self-contradictory, if actually it is realistic? Can a part or a relation or what you will in the world of the definite ever be expected to meet the test of self-identity? If there is any wholeness to the world of things or any validity or integrity in the experience of things, can it possibly belong to what is not made up of parts that comprise the whole only by virtue of their lack of self-identity? And, on the other hand, can an undivided whole, a whole whose own self-identity is not the divided labor of unidentical parts, in short a whole that does not share with its parts the lack of self-identity,—can such a whole claim integrity or reality?

So, to return to our starting-point, which was also Mr. Bradley's, relationship implies differences; the different things all individually have some share in all the differences; and in consequence realism as contrasted with phenomenalism is the only possible conclusion from the universal fact of relativity. The real dwells in the differences of things relative and in the life and unity that these differences constantly serve, and it dwells also in the things themselves, since they are themselves all inwardly differentiated, as well as each one different from what surrounds it, and since the inward or intensive differentiation has the one-to-one correspondence with the outward or extensive differentiation. So conditioned, then, the real is plainly immanent in the relative. True, it may not have a visible or tangible form, nor a discoverable habitation, nor even a stone on which to lay its head, but it is neither less real nor less immanent on that account. A world of relations, a world whose reality and integrity depend on differences can hardly be real in any such palpable or hypostatical way.

And being immanent in the relative, after the manner which has now been indicated, reality is necessarily active or dynamic in its nature; to use what must be more than a metaphor, it is a tension of

which they were weighted, and if their antinomic character gave validity, their formal character made individuality also possible. A multiplicity of the objects of experience or of the subjects having experience was wholly consistent with the possibility of validity so long and only so long as the *a priori* forms, which being formal were capable of indefinitely different contents, were antinomic.

differences, of differences at once developmental and conserving or counteractive, giving movement at the same time that they insure poise. This tension of differences, moreover, involves constant change in the world of things, whether taken individually or taken collectively; yet the change, sweeping everything with it, can be only the persistence of reality, the maintenance of what is. Still, beyond this very brief reference to the dynamic character of reality, of a reality that is dynamic because immanent in the relative or in the at once active and counteractive differences that the relative implies, I shall not venture to go at this time. How the real could dwell in the relative and be experienced through it was, as will be recalled, the direct interest of the present note.

So, to conclude with just a suggestion or two in reference to the antithesis of the finite and the infinite always so properly associated with that of the relative and the real, it can hardly be necessary to say that the infinite has already been in evidence in the foregoing discussion. Thus suppose we accept the idea of the infinite of which so much has been heard in the last few years. Infinity, we are told, belongs to any class (group, collection, assemblage, manifold) according as it contains a part to which the whole is equivalent in the sense that between the elements of the part and those of the whole there subsists a unique and reciprocal, or one-to-one, correspondence. Under this test the series $1, \frac{1}{2}, \frac{1}{4}, \frac{1}{8}, \frac{1}{16}, \frac{1}{32}$, etc., is infinite. The perfect map of England is infinite. Plato's individual, having in its parts a one-to-one correspondence to the classes of society, is infinite or is a party to the infinity of a society that includes such an individual. And the reality which is immanent in the relative, or in the differences of the relative that are themselves differentiated on the plan of a one-to-one correspondence, is infinite or, should we not say with Spinoza, absolutely or infinitely infinite. Furthermore, if our account of reality has been correct, its infinity is now seen to involve these things: (1) relationship, (2) differences, (3) distinction between intension and extension or between inward and outward differentiation, (4) one-to-one correspondence, (5) balance or integrity, and (6) activity or movement. Such an infinity, moreover, is immanent in the finite even as the real is immanent in the relative.²

ALFRED H. LLOYD.

UNIVERSITY OF MICHIGAN.

²Quite in line with this analysis of the concept of infinity I have already suggested in another place ("Professor Fullerton on 'The Doctrine of Space and Time,'" *Psychological Review*, March, 1902, pp. 174-180) that, mathematically, infinity has involved the distinction between quantity as mass and quantity as ratio or relation, and that with the development of this distinction, whether implied or expressed, the calculus and a mathematics of motion were

NOTE ON PROFESSOR MÜNSTERBERG'S 'PERCEPTION OF DISTANCE'

PROFESSOR MÜNSTERBERG'S article in the last number of the JOURNAL, discussing the perception of distance with the verant, contains the statement: "The large public, suffering from the defects of its virtues, deprived, that is, of the privilege of a natural magnifying glass on account of normal eyesight, will of course gladly make use of this system of lenses. . . . If not every myopic person, then at least every myopic psychologist must have enjoyed these experiences before." In this connection, it seems well to note that the myopic eye probably has no advantage over the normal eye in this particular, provided the observer looks through a magnifying glass of short focal length. I have obtained the plastic effects very beautifully with lenses of 12 and 16 diopters. The same result may be obtained, of course, by looking at a photograph through a camera. The picture on the glass plate has all the plastic beauty that the stereoscope would show. In order not to confuse imagined perspective with this mechanically produced perspective, it is well to look at the picture upside down, or to use pictures which appear quite flat to the unaided eye.

JAMES BURT MINER.

THE STATE UNIVERSITY OF IOWA.

made possible. In this earlier paper appeared such statements as these: 'Infinity [treated as a quantity or a quasi-quantity] is only an indirection for [some] constant relation,' the constant relation, or differentiation, of bisection, for example, in the series: 1, $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$. . . etc. "The infinitely small or great taken quantitatively [or massively] is only symbolic of a uniform process, of an activity under a fixed law, of a principle immanent in every term of the series and giving to the series as a whole a unity that quite transcends the limitations of merely quantitative [or massive] division." "Infinity [as mass] stands as an indirect but not less effective way of asserting the constructive principle of a series and so also of symbolically presenting in a quasi-static form the dynamic character that the series contains or even more generally the quality of any number-group." And again: "The real last term [of an infinite series] is not indeed one more among all the other terms and coordinate with them; rather it is the finally abstracted principle, say the sheer parallelism [in the case of the lines that meet at infinity] or the bare fact of bisection—without anything left to bisect [in the series 1, $\frac{1}{2}$, . . . etc.] that sets or establishes the series." The ultimate, like the primary, can be only a mere abstraction for the eternal and omnipresent, for something immanent in the finite members of the series, or in the process or operation by which the series is constructed and by which, among other things, as the series develops each new term is so differentiated as to get a one-to-one correspondence with the term that has preceded it as well as with the whole out of which the series has sprung.

REVIEWS AND ABSTRACTS OF LITERATURE

The Theory of Advertising. WALTER DELL SCOTT, Ph.D. Boston, Small, Maynard and Co. 1904. Pp. xii + 240.

Professor Scott's book, which is essentially an application of the psychology of attention, perception, imagery, the association of ideas and suggestion to the problems of advertising, has already proved its usefulness to the practitioner of that profession or business. Rarely has the first step in an applied science been so heartily welcomed. Presumably Professor Scott's judgment in this field, being the result of experiment and systematic reflection, is better than that of any critic, but of the doctrine of one chapter the reviewer ventures a criticism. On general principles it seems risky to base recommendations on the theory that the power of an author or advertisement-writer to present facts so as to arouse a given type of imagery depends upon the presence in him of that type of imagery. For instance Professor William James reports himself as excessively low in the scale of vividness and fidelity of images of all sorts. Yet he surely has command over a most graphic and picturesque style and would, one imagines, be capable of writing advertisements that would make the prospective buyer's mouth water or fingers itch. And, in general, the doctrine that the presence of a tendency to feel in a certain way is correlated with the capacity to allow for and influence that feeling in others seems to possess only verbal plausibility.

Professor Scott's book is valuable to teachers of psychology as well as to advertisers. It is pedagogically a great advantage to have a beginning class in psychology get in the first weeks a vague idea of psychology as a whole, of what it is all about. Chapters II., III. and VII.-XIV. of 'The Theory of Advertising' may well be given a high place among the books and articles suitable for this propædæutic, in spite of, and perhaps also because of, the connection of the discussion with a particular art. The college sophomore needs some protection against 'mental states as such' and cognitions, emotions and volitions.

Very many lessons can be drawn by one of speculative mind from the fact that a professor of psychology writes a series of articles on psychology for a trade journal. The prospect of a host of applied sciences developing from empirical psychology has been ever before us, but it has, hitherto, had somewhat the form of a mirage and has kept in the dim distance. One of the will-of-the-wisps having become real, we may hope to see psychological methods applied to the problems of government, industry, social arrangements and the like. Evidently we shall be burdened with a new set of moral problems as soon as psychology gains the knowledge which gives power of control over men and women. We all agree that it is a grand thing for science to teach a man how to bully the ions into doing what he wants, or how to murder all the malaria parasites. But to teach men how to bully everyone into eating cereallet or to murder all desires for higher wages! Psychology will have new responsibilities.

EDWARD L. THORNDIKE.

TEACHERS COLLEGE, COLUMBIA UNIVERSITY.

L'examen de la suggestibilité chez les nerveux. L. SCHNYDER. *Archives de Psychologie*, August, 1904, pp. 44-57.

Schnyder has examined 203 cases of a greatly varied number of nervous affections, with a view to determine to what extent the sham application to the fingers of two rings connected with a useless rheostat, leads to subjective sensations. Under very uniform conditions with the eyes closed, the patient is simply asked, 'Do you feel anything?' while the rheostat is being changed; the answers are at once written down; the question is repeated from minute to minute in case that the subject does not make a spontaneous statement after some new movement of the handle. The examination is not extended beyond five minutes, and since the tests were made judiciously, and always by the author, and since they were preceded by tests of the reliability in an ordinary examination of sensibility, the results are quite comparable. His cases are as follows:

In neurasthenia (rapid fatigability, phobias, conviction of impotence) and a certain number of dyspeptics: 53 women with 41 positive results; and 51 men with 31 positive results.

In hysteria (astasia-abasia, contracture, anorexia): 12 out of 28 women; and 4 out of 9 men.

In mental diseases (melancholia and hypochondriasis, catatonia and dementia præcox): 3 out of 13 women and 8 out of 22 men.

In various organic nervous affections: 5 out of 17 women; and 6 out of 10 men.

The expectant attention of the neurasthenic explains the great prevalence of positive results among them. The results in hysteria might be surprising, but they show that outside of a special strain the hysterical are more indifferent, in harmony with what Janet considers to be at the bottom of their principal sensory disorder. All depends on the relation of the stimulus to a fixed system of auto-suggestions. In this case the results are positive. In hypochondriasis and melancholia there prevails an aversive scepticism, at times with a veritable negative auto-suggestion.

Schnyder does not rank all suggestibility on as favorable a level as educability, as Bérillon puts it. It is preferable to a sceptical or indifferent attitude, but its absence denotes a certain strength of judgment of great importance, as a guarantee for a rational psychic treatment. His procedure might rank as a test of individual psychology, but also as a curative factor—as a means to convince the patient of the possible error of interpretation of other auto-suggestive symptoms.

Both from the point of view of individual psychology and from that of a practical stepping-stone in psycho-therapeutic reeducation, the method seems to be well chosen, and with proper exclusion of verbal impressions and accessory suggestions of expectation while the apparatus is being put on, the conditions of the test are fairly simple and the results comparable.

ADOLF MEYER.

Observations sur le langage intérieur des enfants. A. LEMAITRE. *Archives de Psychologie*, August, 1904, pp. 1-43.

This article gives, first, a résumé of 14 cases of word imagery in children, published by him in 1902, and, secondly, a detailed account of 18 new cases. He divides them into *verbo-visuels*, who visualize their words, *verbo-auditif*, who think in mentally heard words, *verbo-moteur*, who think in mentally spoken words, *auditivo-visuels*, who think in both ways, *symbolo-visuels*, who visualize words in print or script, at the same time representing, on or near the words, pictures symbolic of the objects denoted, and *visuelo-moteur*, in whom the visual and articulatory word images are associated. These 32 cases were distributed as follows: *verbo-visuels*, 10; *symbolo-visuels*, 6; *auditivo-visuels*, 6; *visuelo-moteur*, 3; *verbo-auditif*, 4; *verbo-moteur*, 3. In his conclusion he says that in children of 13 to 14, different types of word images are most frequently observed; that these types are more complex than in adults, where one brain center gains predominance over the others. He notices a tendency to become auditory about the time of puberty. He adds the following table giving statistical results of a study of 90 children in three school classes:

	1901-2.	1902-3.	1903-4.	Total.	Per Cent.
Verbo-moteur,	11	15	15	41	45.55
Verbo-auditif,	6	3	3	12	13.33
Verbo-visuel,	5	7	2	14	15.56
Symbolo-visuel,	5	5	5	15	16.67
Auditivo-visuel,	3	0	2	5	5.56
Visuelo-moteur,	1	0	1	2	2.22
Equilibrés,	0	0	1	1	1.11
	31	30	29	90	100.00

The type called 'équilibre' is one in which the three kinds of images, visual, auditory and articulatory are simultaneous or nearly so. He also describes a so-called 'type indifférent' in which they alternate.

Results of two experiments are given. (1) On auditory memory, in which three Latin sentences, spoken three times, were reproduced by the children after three hours of school work. The best reproductions were by the visual and the auditory types. (2) On visual memory: ten sentences, in two groups, the first group all Latin, the second, three Latin and two German, were shown on a blackboard and explained, the exposure lasting seven minutes. The sentences were then rubbed out and the children asked to write what they remembered. The results were as follows:

Types.	Seconds.	Per Cent.
Audito-visuels and équilibres,	180	97.50
Auditif,	322	86.25
Visuels,	359	86.45
Moteurs,	440	64.

Other tests on the memory of texts or numbers confirmed the superiority of the auditory type.

M. Lemaitre notes that the scholastic dispute between nominalists and realists was, in his belief, entirely 'endophasique,' and that the nominalists were of the articulatory-motor type, the realists were visuels, and conceptualists were auditory.

Incidentally many examples of synæsthesia and of number forms are described.

WILFRID LAY.

NEW YORK.

La Finalité en Biologie. E. GOBLOT. *Revue Philosophique*, July, 1904, pp. 24-37.

This is one of several contributions by the author bearing upon the same subject. The present article was called forth by a letter from M. Chas. Richet, which had been appended to another of the author's recent papers. Richet there formulates two great laws, to which, he holds, all living things conform: (1) an 'effort toward life,' and (2) 'progress in the manifestations of life.' Goblot rejects both of these generalizations. He admits, as he is bound to do, a general advance in the degree of organic complexity, but denies the existence of *progress* in the sense of an advance toward a goal which may be said to be *better*. Relative to the needs of a species or an individual, this or that thing may be regarded as good or bad, but such terms are purely relative, and can not be applied to the living world as a whole.

The scientist can not escape, however, from 'finalistic' conceptions, which he employs unconsciously, even while rejecting them in theory. But it is the 'providential teleology, the anthropocentric and anthropomorphic teleology, the vitalistic teleology' which he rejects as anti-scientific. Thus, 'la mauvaise finalité chasse la bonne.' No scientist would admit that the eye was 'made for seeing,' but he says correctly that vision is the reason for the eye's existence. "If vision explains itself by the structure of the eye, the structure of the eye explains itself also by vision, and this explanation is precisely what the student seeks when he investigates the how and the why of organic evolution." Again, it is the existence of finality which gives to physiology its place as an independent science, for 'function is a finalistic idea.'

Final causes, according to Goblot, 'should not be sought above and beyond the facts,' but in the series of phenomena itself. 'Final causes,' if the term may be employed at all, are *efficient causes*. In considering the variation of a species of organisms, he would designate as a final cause 'a series of circumstances such that the species would perish if it were not transformed.' These circumstances 'are, indeed, efficient causes, but they are also final causes, since the relation of fitness between them and the character in question is the reason for their efficiency.' Many of the transformations which take place in the organic world can not, however, be regarded as manifestations of finality, *i.e.*, such as are non-adaptive.

It will be seen that the author has concerned himself mainly with *defining* finality as he chooses to employ the term. From the biologist's

standpoint, I should say that Goblot had not succeeded in throwing much light upon the subject. It is not so much definitions that we need in this field at present as it is facts, and these facts are being investigated by the modern 'experimental' school of biology. Is it or is it not true that living matter in general simulates intelligent choice in its power to respond adaptively to conditions which are foreign to individual and racial experience? Are there or are there not organic structures of purely 'prophetic' significance? Is the course of evolution governed in the main by environmental conditions, or is it determined by innate tendencies to vary in particular directions? These are real problems to be solved by the accumulation of facts.

The author's comparison between the operations of human intelligence and those of natural selection is interesting, though by no means novel.

FRANCIS B. SUMNER.

COLLEGE OF THE CITY OF NEW YORK.

JOURNALS AND NEW BOOKS

INTERNATIONAL JOURNAL OF ETHICS. October, 1904. Vol. XV., No. 1. *The Bias of Patriotism* (pp. 1-27): ALFRED JORDAN. - Preference for one's country is justifiable just so long as it does not conflict with the equally justifiable preference of other men for their countries. *Moral Instruction in Schools* (pp. 28-47): HERBERT M. THOMPSON. - Contains interesting examples of the author's secular method of teaching morals to children, and an arraignment of the current attempts to base ethical truth upon theological dogmas. *Music and Morality* (pp. 48-63): HALBERT H. BRITAN. - Music is of no direct value in developing the moral nature but by its elevating effect upon the emotions it serves indirectly to increase moral efficiency. *Truth and Imagination in Religion* (pp. 64-82): RALPH BARTON PERRY. - Between those who regard religion as purely subjective and those who believe it to be essentially bound up with theoretical dogmas the author takes up a middle position. Religion does involve an objective or ontological reference, but that reference is practical rather than theoretical. So long as reality is such as to vindicate our religious attitudes it matters not at all as to its particular constitution. *Human Pre-existence* (pp. 83-95): J. ELLIS McTAGGART. - It is difficult to believe in life after death unless we believe also in life before birth. In view of the stock of aptitudes and tendencies possessed by each individual at the time of his birth the author feels it reasonable to assume a pre-existent life for their acquirement. That such inborn traits may be due to inheritance is a view which the author apparently does not consider worthy of mention. The lack of memory of our past lives is regarded as the main difficulty, though not an insuperable one. *A Japanese View of American Trade Unionism* (pp. 96-108): HORRO IRO. - Economic issues are still obscured by the doctrine of natural rights. The right to one's job no less than the right to buy labor in the cheapest market are valid only in so far

as they accord with the general welfare. Measured by this criterion Unionism is right in principle though in danger of being carried to excess. So far, however, its abuses of power have been slight in comparison with the temptations to which it has been exposed. For the strike-breaker there should be little sympathy. *English Prisons and their Methods* (pp. 109-116): H. J. B. MONTGOMERY.—The author, speaking from experience, protests against the current notion that English prisoners are coddled. He describes the meaningless and arbitrary indignities to which convicts are subjected, and by which they are made worse instead of better. *Book Reviews* (pp. 117-133): Edward Caird, *The Evolution of Theology in the Greek Philosophers*: J. B. BAILLIE. Archibald Duff, *The Theology and Ethics of the Hebrews*: NATHANIEL SCHMIDT. By Five Hindoo Scholars, *Aspects of the Vedanta*: J. ELLIS McTAGGART. Henry T. Finch, *Primitive Love and Love-Stories*: NATHANIEL SCHMIDT. Arthur V. Woodworth, *Christian Socialism in England*: D. H. MACGREGOR. Walter McDonald, *The Principles of Moral Science*: F. MELIAN STAWELL. By Various Authors, *Methods of Social Advances*: C. P. SANGER. W. G. Jordan, *Prophetic Ideas and Ideals*: NATHANIEL SCHMIDT. Charles F. Dole, *The Religion of a Gentleman*: NATHANIEL SCHMIDT.

THE PHILOSOPHICAL REVIEW. November, 1904. Vol. XIII., No. 6. *The Present Problems of General Psychology* (pp. 603-621): JAMES WARD.—Between the presentationalists, who would make the subject a function of its objects, and the idealists, who would regard objects as states of the subject, the author takes a middle position. He holds that subjectivity is identical with selective (rather than creative) activity, and that, as such, it is a necessary and irreducible aspect or pole of experience. In the problem of the subconscious, and in the conflict between the structural and functional ideals of method, the author also pleads for an intermediate position. *A Factor in Mental Development* (pp. 622-626): MARGARET FLOY WASHBURN.—A most ingenious attempt to explain the development of the higher mental functions from 'the possibility of reacting to stimulation that neither hurts nor helps the organism, at the moment of its operation.' *Scepticism* (pp. 627-641): A. K. ROGERS.—No scepticism is or can be absolute, for all intelligent doubt involves a belief in something as true. Scepticism, moreover, even so far as it is applied to particular judgments, involves some positive belief or conviction. The more judgments a given judgment is consistent with, the less reason we have to doubt it. *Ethical Subjectivism* (pp. 642-659): T. DE LAGUNA.—The intellectualistic view, according to which virtue is knowledge, is not incompatible with ethical subjectivism, and can be reconciled with the voluntaristic view that virtue is well-meaningness by considering that the knowledge of what is truly right will surely be developed from attempts to do what seems right. Discussion—*Professor Bawden's Functional Theory: A Rejoinder* (pp. 660-665): GRACE MEAD ANDRUS.—The author repeats her criticism of Professor Bawden's articles on the nature of physical and psychical,

and charges him with using, for purposes of philosophical synthesis, abstractions from the special sciences. Reviews of Books: J. Dewey, *Studies in Logical Theory*; A. S. PRINGLE-PATTISON. Th. Lipps, *Grundlegung der Ästhetik*; J. H. TUFTS. W. Wundt, *Ethik*; E. B. MCGILVARY. Summaries of Articles. Notices of New Books. Notes.

Bossert, A. *Schopenhauer als Mensch und Philosoph*. Dresden: C. Reissner. 1905. 382 pp. 8 vo. 6 m.

Cohen, H. *System der Philosophie II. Ethik des Reinen Willens*. Berlin: B. Cassirer. 1904. 641 pp. 8vo.

Dinger, H. *Die Dramaturgie als Wissenschaft. I. Die Dramaturgie als theoretische Wissenschaft*. Leipzig: Veit & Co. 1904. 326 pp. 8vo. 7.50 m.

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NOTES AND NEWS

THE two hundredth anniversary of the death of John Locke was commemorated at the George Washington University, on November 12, under the auspices of the Society for Philosophical Inquiry. The program was as follows: 'Locke on Government': President Needham, of the George Washington University. 'Locke's Influence on Modern Psychology': The Rev. Dr. E. A. Pace, of the Catholic University of America. 'Locke's Metaphysics of Causality and Space': Dr. Wm. T. Harris, U. S. Commissioner of Education. 'Locke's Personality': Dr. William Osler, of Johns Hopkins University.

AT King's College, London, Professor Caldecott will lecture on general psychology during the first and second terms of the coming session; Professor Halliburton, on histological psychology, during the first term, and Dr. C. S. Meyers, on experimental psychology (with demonstrations and laboratory work), during the second and third terms.

MR. FRANCIS GALTON, F.R.S., has founded in London University a fellowship for the promotion of the study of 'National Eugenics,' 'the study of the agencies under social control that may improve or impair the racial qualities of future generations, either physically or mentally.'

MISS FLORENCE FITCH, Ph.D. (Berlin, 1903), has been appointed associate professor of philosophy at Oberlin College.

THE JOURNAL OF PHILOSOPHY

PSYCHOLOGY AND SCIENTIFIC METHODS

THE PRAGMATIC METHOD¹

THE principle of pragmatism, as we may call it, may be expressed in a variety of ways, all of them very simple. In the *Popular Science Monthly* for January, 1878, Mr. Charles S. Peirce introduces it as follows: The soul and meaning of thought, he says, can never be made to direct itself towards anything but the production of belief, belief being the demicadence which closes a musical phrase in the symphony of our intellectual life. Thought in movement has thus for its only possible motive the attainment of thought at rest. But when our thought about an object has found its rest in belief, then our action on the subject can firmly and safely begin. Beliefs, in short, are really rules for action; and the whole function of thinking is but one step in the production of habits of action. If there were any part of a thought that made no difference in the thought's practical consequences, then that part would be no proper element of the thought's significance. Thus the same thought may be clad in different words; but if the different words suggest no different conduct, they are but outer accretions, and have no part in the thought's meaning. If, however, they determine conduct differently, they are essential elements of the significance. Thus to develop a thought's meaning we need only determine what conduct it is fitted to produce; that conduct is for us its sole significance. And the tangible fact at the root of all our thought-distinctions, however subtle, is that there is no one of them so fine as to consist in anything but a possible difference of practice. To attain perfect clearness in our thoughts of an object, then, we need only consider what effects of a conceivably practical kind the object may involve—what sensations we are to expect from it, and what reactions we must prepare. Our conception of these effects, then, is for us the whole of

¹The following address was originally delivered before the Philosophical Union of the University of California, on August 26, 1898, and was printed in *The University Chronicle* for September, 1898. It is reprinted here with a few omissions and with the author's consent, on account of its intimate relation to current discussions.—EDITOR.

our conception of the object, so far as that conception has positive significance at all.

This is the principle of Peirce, the principle of pragmatism. I think myself that it should be expressed more broadly than Mr. Peirce expresses it. The ultimate test for us of what a truth means is indeed the conduct it dictates or inspires. But it inspires that conduct because it first foretells some particular turn to our experience which shall call for just that conduct from us. And I should prefer to express Peirce's principle by saying that the effective meaning of any philosophic proposition can always be brought down to some particular consequence, in our future practical experience, whether active or passive; the point lying rather in the fact that the experience must be particular, than in the fact that it must be active.

To take in the importance of this principle, one must get accustomed to applying it to concrete cases. Such use as I am able to make of it convinces me that to be mindful of it in philosophical disputations tends wonderfully to smooth out misunderstandings and to bring in peace. If it did nothing else, then, it would yield a sovereignly valuable rule of method for discussion. Suppose, in fact, that there are two different philosophical definitions, or propositions, or maxims, or what not, which seem to contradict each other, and about which men dispute. If, by assuming the truth of the one, you can foresee no conceivable practical consequence to anybody at any time or place, which is different from what you would foresee if you assumed the truth of the other, why then the difference between the two propositions is no real difference—it is only a specious and verbal difference, unworthy of further contention. Both formulas mean radically the same thing, although they may say it in such different words. It is astonishing to see how many philosophical disputes collapse into insignificance the moment you subject them to this simple test. There can *be* no difference which doesn't *make* a difference—no difference in abstract truth which does not express itself in a difference of concrete fact, and of conduct consequent upon the fact, imposed on somebody, somehow, somewhere and somewhen. It is true that a certain shrinkage of values often seems to occur in our general formulas when we measure their meaning in this prosaic and practical way. They diminish. But the vastness that is merely based on vagueness is a false appearance of importance, and not a vastness worth retaining. The *x*'s, *y*'s and *z*'s always do shrivel, as I have heard a learned friend say, whenever at the end of your algebraic computation they change into so many plain *a*'s, *b*'s and *c*'s; but the whole function of algebra is, after all, to get them into that more definite shape; and the whole function of philosophy ought to be to find out what definite differ-

ence it will make to you and me, at definite instants of our life, if this world-formula or that world-formula be the one which is true.

If we start off with an impossible case, we shall perhaps all the more clearly see the use and scope of our principle. Let us, therefore, put ourselves, in imagination, in a position from which no forecasts of consequence, no dictates of conduct, can possibly be made, so that the principle of pragmatism finds no field of application. Let us, I mean, assume that the present moment is the absolutely last moment of the world, with bare nonentity beyond it, and with no hereafter for either experience or conduct.

Now I say that in that case there would be no sense whatever in some of our most urgent and envenomed philosophical and religious debates. The question, 'Is matter the producer of all things, or is a God there too?' would, for example, offer a perfectly idle and insignificant alternative if the world were finished and no more of it to come. Many of us, most of us, I think, now feel as if a terrible coldness and deadness would come over the world were we forced to believe that no informing spirit or purpose had to do with it, but it merely accidentally had come. The actually experienced details of fact might be the same on either hypothesis, some sad, some joyous; some rational, some odd and grotesque; but without a God behind them, we think they would have something ghastly, they would tell no genuine story, there would be no speculation in those eyes that they do glare with. With the God, on the other hand, they would grow solid, warm, and altogether full of real significance.

But I say that such an alternation of feelings, reasonable enough in a consciousness that is prospective, as ours now is, and whose world is partly yet to come, would be absolutely irrational in a purely retrospective consciousness summing up a world already past. For such a consciousness, no emotional interest could attach to the alternative. The problem would be purely intellectual; and if unaided matter could, with any scientific plausibility, be shown to cipher out the actual facts, then not the faintest shadow ought to cloud the mind, of regret for the God that by the same ciphering would prove needless and disappear from our belief.

For just consider the case sincerely, and say what would be the *worth* of such a God if he *were* there, with his work accomplished and his world run down. He would be worth no more than just that world was worth. To that amount of result, with its mixed merits and defects, his creative power could attain, but go no farther. And since there is to be no future; since the whole value and meaning of the world has been already paid in and actualized in the feelings that went with it in the passing, and now go with it in the ending; since it draws no supplemental significance (such as our real world

draws) from its function of preparing something yet to come;—why then, by it we take God's measure, as it were. He is the Being who could once for all do *that*; and for that much we are thankful to him, but for nothing more. But now, on the contrary hypothesis, namely, that the bits of matter following their 'laws' could make that world and do no less, *should we not be just as thankful to them?* Wherein should we suffer loss, then, if we dropped God as an hypothesis and made the matter alone responsible? Where would the special deadness, 'crassness' and ghastliness come in? And how, experience being what it is once for all, would God's presence in it make it any more 'living,' any richer in our sight?

Candidly, it is impossible to give any answer to this question. The actually experienced world is supposed to be the same in its details on either hypothesis, 'the same, for our praise or blame,' as Browning says. It stands there indefeasibly; a gift which can't be taken back. Calling matter the cause of it retracts no single one of the items that have made it up, nor does calling God the cause augment them. They are the God or the atoms, respectively, of just that and no other world. The God, if there, has been doing just what atoms could do—appearing in the character of atoms, so to speak—and earning such gratitude as is due to atoms, and no more. If his presence lends no different turn or issue to the performance, it surely can lend it no increase of dignity. Nor would indignity come to it were he absent, and did the atoms remain the only actors on the stage. When a play is once over, and the curtain down, you really make it no better by claiming an illustrious genius for its author, just as you make it no worse by calling him a common hack.

Thus if no future detail of experience or conduct is to be deduced from our hypothesis, the debate between materialism and theism becomes quite idle and insignificant. Matter and God in that event mean exactly the same thing—the power, namely, neither more nor less, that can make just this mixed, imperfect, yet completed world—and the wise man is he who in such a case would turn his back on such a supererogatory discussion. Accordingly, most men instinctively—and a large class of men, the so-called positivists or scientists, deliberately—do turn their backs on philosophical disputes from which nothing in the line of definite future consequences can be seen to follow. The verbal and empty character of our studies is surely a reproach with which you of the Philosophical Union are but too sadly familiar. A student said to me the other day, 'Words, words, words, are all that you philosophers care for.' We philosophers think it all unjust; and yet, if the principle of pragmatism be true, it is a perfectly sound reproach unless the metaphysical alternatives under investigation can be shown to have alternative

practical outcomes, however delicate and distant these may be. The common man and the scientist can discover no such outcomes. And if the metaphysician can discern none either, the common man and scientist certainly are in the right of it, as against him. His science is then but pompous trifling; and the endowment of a professorship for such a being would be something really absurd.

Accordingly, in every genuine metaphysical debate some practical issue, however conjectural and remote, is involved. To realize this, revert with me to the question of materialism or theism; and place yourselves this time in the real world we live in, the world that has a future, that is yet uncompleted whilst we speak. In this unfinished world the alternative of 'materialism or theism?' is intensely practical; and it is worth while for us to spend some minutes of our hour in seeing how truly this is the case.

How, indeed, does the program differ for us, according as we consider that the facts of experience up to date are purposeless configurations of atoms moving according to eternal elementary laws, or that on the other hand they are due to the providence of God? As far as the past facts go, indeed there is no difference. These facts are in, are bagged, are captured; and the good that's in them is gained, be the atoms or be the God their cause. There are accordingly many materialists about us to-day who, ignoring altogether the future and practical aspects of the question, seek to eliminate the odium attaching to the word materialism, and even to eliminate the word itself, by showing that, if matter could give birth to all these gains, why then matter, functionally considered, is just as divine an entity as God, in fact coalesces with God, is what you mean by God. Cease, these persons advise us, to use either of these terms, with their outgrown opposition. Use a term free of the clerical connotations, on the one hand; of the suggestion of grossness, coarseness, ignobility, on the other. Talk of the primal mystery, of the unknowable energy, of the one and only power, instead of saying either God or matter. This is the course to which Mr. Spencer urges us at the end of the first volume of his *Psychology*. In some well-written pages he there shows us that a 'matter' so infinitely subtle, and performing motions as inconceivably quick and fine as modern science postulates in her explanations, has no trace of grossness left. He shows that the conception of spirit, as we mortals hitherto have framed it, is itself too gross to cover the exquisite complexity of nature's facts. Both terms, he says, are but symbols, pointing to that one unknowable reality in which their oppositions cease.

Throughout these remarks of Mr. Spencer, eloquent, and even noble in a certain sense, as they are, he seems to think that the dislike of the ordinary man to materialism comes from a purely esthetic

disdain of matter, as something gross in itself, and vile and despicable. Undoubtedly such an esthetic disdain of matter has played a part in philosophic history. But it forms no part whatever of an intelligent modern man's dislikes. Give him a matter bound *forever* by its laws to lead our world nearer and nearer to perfection, and any rational man will worship that matter as readily as Mr. Spencer worships his own so-called unknowable power. It not only has made for righteousness up to date, but it will make for righteousness forever; and that is all we need. Doing practically all that a God can do, it is equivalent to God, its function is a God's function, and is exerted in a world in which a God would now be superfluous; from such a world a God could never lawfully be missed.

But is the matter by which Mr. Spencer's process of cosmic evolution is carried on any such principle of never-ending perfection as this? Indeed it is not, for the future end of every cosmically evolved thing or system of things is tragedy; and Mr. Spencer, in confining himself to the esthetic and ignoring the practical side of the controversy, has really contributed nothing serious to its relief. But apply now our principle of practical results, and see what a vital significance the question of materialism or theism immediately acquires.

Theism and materialism, so indifferent when taken retrospectively, point, when we take them prospectively, to wholly different practical consequences, to opposite outlooks of experience. For, according to the theory of mechanical evolution, the laws of redistribution of matter and motion, though they are certainly to thank for all the good hours which our organisms have ever yielded us and for all the ideals which our minds now frame, are yet fatally certain to undo their work again, and to redissolve everything that they have once evolved. You all know the picture of the last foreseeable state of the dead universe, as evolutionary science gives it forth. I can not state it better than in Mr. Balfour's words: "The energies of our system will decay, the glory of the sun will be dimmed, and the earth, tideless and inert, will no longer tolerate the race which has for a moment disturbed its solitude. Man will go down into the pit, and all his thoughts will perish. The uneasy consciousness which in this obscure corner has for a brief space broken the contented silence of the universe, will be at rest. Matter will know itself no longer. 'Imperishable monuments' and 'immortal deeds,' death itself, and love stronger than death, will be as if they had not been. Nor will anything that is be better or worse for all that the labor, genius, devotion and suffering of man have striven through countless ages to effect."²

² 'The Foundation of Beliefs,' p. 30.

That is the sting of it, that in the vast driftings of the cosmic weather, though many a jeweled shore appears, and many an enchanted cloud-bank floats away, long lingering ere it be dissolved—even as our world now lingers, for our joy—yet when these transient products are gone, nothing, absolutely *nothing*, remains, to represent those particular qualities, those elements of preciousness which they may have enshrined. Dead and gone are they, gone utterly from the very sphere and room of being. Without an echo; without a memory; without an influence on aught that may come after, to make it care for similar ideals. This final wreck and tragedy is of the essence of scientific materialism as at present understood. The lower and not the higher forces are the eternal forces, or the last surviving forces within the only cycle of evolution which we can definitely see. Mr. Spencer believes this as much as anyone; so why should he argue with us as if we were making silly esthetic objections to the ‘grossness’ of ‘matter and motion,’—the principles of his philosophy,—when what really dismays us in it is the disconsolateness of its ulterior practical results?

No, the true objection to materialism is not positive but negative. It would be farcical at this day to make complaint of it for what it *is*, for ‘grossness.’ Grossness is what grossness *does*—we now know *that*. We make complaint of it, on the contrary, for what it is *not*—not a permanent warrant for our more ideal interests, not a fulfiller of our remotest hopes.

The notion of God, on the other hand, however inferior it may be in clearness to those mathematical notions so current in mechanical philosophy, has at least this practical superiority over them, that it guarantees an ideal order that shall be permanently preserved. A world with a God in it to say the last word, may indeed burn up or freeze, but we then think of Him as still mindful of the old ideals and sure to bring them elsewhere to fruition; so that, where He is, tragedy is only provisional and partial, and shipwreck and dissolution not the absolutely final things. This need of an eternal moral order is one of the deepest needs of our breast. And those poets, like Dante and Wordsworth, who live on the conviction of such an order, owe to that fact the extraordinary tonic and consoling power of their verse. Here then, in these different emotional and practical appeals, in these adjustments of our concrete attitudes of hope and expectation, and all the delicate consequences which their differences entail, lie the real meanings of materialism and theism—not in hair-splitting abstractions about matter’s inner essence, or about the metaphysical attributes of God. Materialism means simply the denial that the moral order is eternal, and the cutting off of ultimate hopes; theism means the affirmation of an

eternal moral order and the letting loose of hope. Surely here is an issue genuine enough, for anyone who feels it; and, as long as men are men, it will yield matter for serious philosophic debate. Concerning this question, at any rate, the positivists and pooh-poothers of metaphysics are in the wrong.

But possibly some of you may still rally to their defense. Even whilst admitting that theism and materialism make different prophecies of the world's future, you may yourselves pooh-pooh the difference as something so infinitely remote as to mean nothing for a sane mind. The essence of a sane mind, you may say, is to take shorter views, and to feel no concern about such chimæras as the latter end of the world. Well, I can only say that if you say this, you do injustice to human nature. Religious melancholy is not disposed of by a simple flourish of the word insanity. The absolute things, the last things, the overlapping things, are the truly philosophic concern; all superior minds feel seriously about them, and the mind with the shortest views is simply the mind of the more shallow man.

However, I am willing to pass over these very distant outlooks on the ultimate, if any of you so insist. The theistic controversy can still serve to illustrate the principle of pragmatism for us well enough, without driving us so far afield. If there be a God, it is not likely that he is confined solely to making differences in the world's latter end; he probably makes differences all along its course. Now the principle of practicalism says that the very meaning of the conception of God lies in those differences which must be made in our experience if the conception be true. God's famous inventory of perfections, as elaborated by dogmatic theology, either means nothing, says our principle, or it implies certain definite things that we can feel and do at particular moments of our lives, things which we could not feel and should not do were no God present and were the business of the universe carried on by material atoms instead. So far as our conceptions of the Deity involve no such experiences, so far they are meaningless and verbal,—scholastic entities and abstractions, as the positivists say, and fit objects for their scorn. But so far as they do involve such definite experiences, God means something for us, and may be real.

Now if we look at the definitions of God made by dogmatic theology, we see immediately that some stand and some fall when treated by this test. God, for example, as any orthodox text-book will tell us, is a being existing not only *per se*, or by himself, as created beings exist, but *a se*, or from himself; and out of this 'aseity' flow most of his perfections. He is, for example, necessary; absolute; infinite in all respects; and single. He is simple, not com-

pounded of essence and existence, substance and accident, actuality and potentiality, or subject and attribute, as are other things. He belongs to no genus; he is inwardly and outwardly unalterable; he knows and wills all things, and first of all his own infinite self, in one indivisible eternal act. And he is absolutely self-sufficing, and infinitely happy.—Now in which one of us practical Americans here assembled does this conglomeration of attributes awaken any sense of reality? And if in no one, then why not? Surely because such attributes awaken no responsive active feelings and call for no particular conduct of our own. How does God's 'aseity' come home to *you*? What specific thing can I do to adapt myself to his 'simplicity'? Or how determine our behavior henceforward if his 'felicity' is anyhow absolutely complete? In the '50's and '60's Captain Mayne Reid was the great writer of boys' books of out-of-door adventure. He was forever extolling the hunters and field-observers of living animals' habits, and keeping up a fire of invective against the 'closet-naturalists,' as he called them, the collectors and classifiers, and handlers of skeletons and skins. When I was a boy I used to think that a closet-naturalist must be the vilest type of wretch under the sun. But surely the systematic theologians are the closet-naturalists of the Deity, even in Captain Mayne Reid's sense. Their orthodox deduction of God's attributes is nothing but a shuffling and matching of pedantic dictionary-adjectives, aloof from morals, aloof from human needs, something that might be worked out from the mere word 'God' by a logical machine of wood and brass as well as by a man of flesh and blood. The attributes which I have quoted have absolutely nothing to do with religion, for religion is a living, practical affair. Other parts, indeed, of God's traditional description do have practical connection with life, and have owed all their historic importance to that fact. His omniscience, for example, and his justice. With the one he sees us in the dark, with the other he rewards and punishes what he sees. So do his ubiquity and eternity and unalterability appeal to our confidence, and his goodness banish our fears. Even attributes of less meaning to this present audience have in past times so appealed. One of the chief attributes of God, according to the orthodox theology, is his infinite love of himself, proved by asking the question, 'By what but an infinite object can an infinite affection be appeased?' An immediate consequence of this primary self-love of God is the orthodox dogma that the manifestation of his own glory is God's primal purpose in creation; and that dogma has certainly made very efficient practical connection with life. It is true that we ourselves are tending to outgrow this old monarchical conception of a Deity with his 'court' and pomp—his state is kingly,

thousands at his bidding speed,' etc.—but there is no denying the enormous influence it has had over ecclesiastical history, nor, by repercussion, over the history of European states. And yet even these more real and significant attributes have the trail of the serpent over them as the books on theology have actually worked them out. One feels that, in the theologians' hands, they are only a set of dictionary-adjectives, mechanically deduced; logic has stepped into the place of vision, professionalism into that of life. Instead of bread we get a stone; instead of fish, a serpent. Did such a conglomeration of abstract general terms give really the gist of our knowledge of the Deity, divinity-schools might indeed continue to flourish, but religion, vital religion, would have taken its flight from this world. What keeps religion going is something else than abstract definitions and systems of logically concatenated adjectives, and something different from faculties of theology and their professors. All these things are after-effects, secondary accretions upon a mass of concrete religious experiences, connecting themselves with feeling and conduct, that renew themselves in *sæcula sæculorum* in the lives of humble private men. If you ask what these experiences are, they are conversations with the unseen, voices and visions, responses to prayer, changes of heart, deliverances from fear, inflowings of help, assurances of support, whenever certain persons set their own internal attitude in certain appropriate ways. The power comes and goes and is lost, and can be found only in a certain definite direction, just as if it were a concrete material thing. These direct experiences of a wider spiritual life with which our superficial consciousness is continuous, and with which it keeps up an intense commerce, form the primary mass of direct religious experience on which all hearsay religion rests, and which furnishes that notion of an ever-present God out of which systematic theology thereupon proceeds to make capital in its own unreal pedantic way. What the word 'God' means is just those passive and active experiences of your life. Now, my friends, it is quite immaterial to my purpose whether you yourselves enjoy and venerate these experiences, or whether you stand aloof and, viewing them in others, suspect them of being illusory and vain. Like all other human experiences, they too certainly share in the general liability to illusion and mistake. They need not be infallible. But they are certainly the originals of the God-idea, and theology is the translation; and you remember that I am now using the God-idea merely as an example, not to discuss as to its truth or error, but only to show how well the principle of pragmatism works. That the God of systematic theology should exist or not exist is a matter of small practical moment. At most it means that you may continue utter-

ing certain abstract words and that you must stop using others. But if the God of these particular experiences be false, it is an awful thing for you, if you are one of those whose lives are stayed on such experiences. The theistic controversy, trivial enough if we take it merely academically and theologically, is of tremendous significance if we test it by its results for actual life.

I can best continue to recommend the principle of practicalism to you by keeping in the neighborhood of this theological idea. I reminded you a few minutes ago that the old monarchical notion of the Deity as a sort of Louis the Fourteenth of the Heavens is losing nowadays much of its ancient prestige. Religious philosophy, like all philosophy, is growing more and more idealistic. And in the philosophy of the Absolute, so-called, that post-Kantian form of idealism which is carrying so many of our higher minds before it, we have the triumph of what in old times was summarily disposed of as the pantheistic heresy,—I mean the conception of God, not as the extraneous creator, but as the indwelling spirit and substance of the world. I know not where one can find a more candid, more clear, or, on the whole, more persuasive statement of this theology of Absolute Idealism than in the addresses made before this very Union three years ago by your own great California philosopher (whose colleague at Harvard I am proud to be), Josiah Royce. His contributions to the resulting volume, *The Conception of God*, form a very masterpiece of popularization. Now you will remember, many of you, that in the discussion that followed Professor Royce's address, the debate turned largely on the ideas of unity and plurality, and on the question whether, if God be One in All and All in All, 'One with the unity of a single instant,' as Royce calls it, 'forming in His wholeness one luminously transparent moment,' any room is left for real morality or freedom. Professor Howison, in particular, was earnest in urging that morality and freedom are relations between a manifold of selves, and that under the régime of Royce's monistic Absolute Thought 'no true manifold of selves is or can be provided for.' I will not go into any of the details of that particular discussion, but just ask you to consider for a moment whether, in general, any discussion about monism or pluralism, any argument over the unity of the universe, would not necessarily be brought into a shape where it tends to straighten itself out, by bringing our principles of practical results to bear.

The question whether the world is at bottom One or Many is a typical metaphysical question. Long has it raged! In its crudest form it is an exquisite example of the *loggerheads* of metaphysics. 'I say it is one great fact,' Parmenides and Spinoza exclaim. 'I say it is many little facts,' reply the atomists and associationists. 'I

say it is both one and many, many in one,' say the Hegelians; and in the ordinary popular discussions we rarely get beyond this barren reiteration by the disputants of their pet adjectives of number. But is it not first of all clear that when we take such an adjective as 'One' absolutely and abstractly, its meaning is so vague and empty that it makes no difference whether we affirm or deny it? Certainly this universe is not the mere number One; and yet you can number it 'one,' if you like, in talking about it as contrasted with other possible worlds numbered 'two' and 'three' for the occasion. What exact thing do you *practically* mean by 'One,' when you call the universe One, is the first question you must ask. In what ways does the oneness come home to your own personal life? By what difference does it express itself in your experience? How can you act differently towards a universe which is one? Inquired into in this way, the unity might grow clear and be affirmed in some ways and denied in others, and so cleared up, even though a certain vague and worshipful portentousness might disappear from the notion of it in the process.

For instance, one practical result that follows when we have one thing to handle, is that we can pass from one part of it to another without letting go of the thing. In this sense oneness must be partly denied and partly affirmed of our universe. Physically we can pass continuously in various manners from one part of it to another part. But logically and psychically the passage seems less easy, for there is no obvious transition from one mind to another, or from minds to physical things. You have to step off and get on again; so that in these ways the world is not one, as measured by that practical test.

Another practical meaning of oneness is susceptibility of collection. A collection is one, though the things that compose it be many. Now, can we practically 'collect' the universe? Physically, of course we can not. And mentally we can not, if we take it concretely in its details. But if we take it summarily and abstractly, then we collect it mentally whenever we refer to it, even as I do now when I fling the term 'universe' at it, and so seem to leave a mental ring around it. It is plain, however, that such abstract significant thing. Chaos, once named, has the noetic unity which seems to carry with it no logical consequences at all.

Again, oneness may mean generic sameness, so that you can treat all parts of the collection by one rule and get the same results. It is evident that in this sense the oneness of our world is incomplete, for in spite of much generic sameness in its elements and items, they still remain of many irreducible kinds. You can't pass by mere logic all over the field of it.

Its elements have, however, an affinity or commensurability with each other, are not wholly irrelevant, but can be compared, and fit together after certain fashions. This again might practically mean that they were one *in origin*, and that, tracing them backwards, we should find them arising in a single primal causal fact. Such unity of origin would have definite practical consequences, would have them for our scientific life at least.

I can give only these hasty superficial indications of what I mean when I say that it tends to clear up the quarrel between monism and pluralism to subject the notion of unity to such practical tests. On the other hand, it does but perpetuate strife and misunderstanding to continue talking of it in an absolute and mystical way. I have little doubt myself that this old quarrel might be completely smoothed out to the satisfaction of all claimants, if only the maxim of Peirce were methodically followed here. The current monism on the whole still keeps talking in too abstract a way. It says the world must be either pure disconnectedness, no universe at all, or absolute unity. It insists that there is no stopping-place half-way. Any connection whatever, says this monism, is only possible if there be still more connection, until at last we are driven to admit the absolutely total connection required. But this absolutely total connection either means nothing, is the mere word 'one' spelt long, or else it means the sum of all the partial connections that can possibly be conceived. I believe that when we thus attack the question, and set ourselves to search for these possible connections, and conceive each in a definite practical way, the dispute is already in a fair way to be settled beyond the chance of misunderstanding, by a compromise in which the Many and the One both get their lawful rights.

But I am in danger of becoming technical; so I must stop right here, and let you go.

I am happy to say that it is the English-speaking philosophers who first introduced the custom of interpreting the meaning of conceptions by asking what difference they make for life. Mr. Peirce has only expressed in the form of an explicit maxim what their sense for reality led them all instinctively to do. The great English way of investigating a conception is to ask yourself right off, 'What is it *known as*? In what facts does it result? What is its *cash-value* in terms of particular experience? and what special difference would come into the world according as it were true or false?' Thus does Locke treat the conception of personal identity. What you mean by it is just your chain of memories, says he. That is the only concretely verifiable part of its significance. All further ideas about it, such as the oneness or manyness of the spiritual substance on which

it is based, are therefore void of intelligible meaning; and propositions touching such ideas may be indifferently affirmed or denied. So Berkeley with his 'matter.' The cash-value of matter is our physical sensations. That is what it is known as, all that we concretely verify of its conception. That, therefore, is the whole meaning of the word 'matter'—any other pretended meaning is mere wind of words. Hume does the same thing with causation. It is known as habitual antecedence, and tendency on our part to look for something definite to come. Apart from this practical meaning it has no significance whatever, and books about it may be committed to the flames, says Hume. Stewart and Brown, James Mill, John Mill, and Bain, have followed more or less consistently the same method; and Shadworth Hodgson has used it almost as explicitly as Mr. Peirce. These writers have many of them no doubt been too sweeping in their negations; Hume, in particular, and James Mill and Bain. But when all is said and done, it was they, not Kant, who introduced 'the critical method' into philosophy, the one method fitted to make philosophy a study worthy of serious men. For what seriousness can possibly remain in debating philosophic propositions that will never make an appreciable difference to us in action? And what matters it, when all propositions are practically meaningless, which of them be called true or false?

The shortcomings and the negations and baldnesses of the English philosophers in question come, not from their eye to merely practical results, but solely from their failure to track the practical results completely enough to see how far they extend. Hume can be corrected and built out, and his beliefs enriched, by using Humian principles exclusively, and without making any use of the circuitous and ponderous artificialities of Kant. It is indeed a somewhat pathetic matter, as it seems to me, that this is not the course which the actual history of philosophy has followed. Hume had no English successors of adequate ability to complete him and correct his negations; so it happened, as a matter of fact, that the building out of critical philosophy has mainly been left to thinkers who were under the influence of Kant. Even in England and this country it is with Kantian catch-words and categories that the fuller view of life is pursued, and in our universities it is the courses in transcendentalism that kindle the enthusiasm of the more ardent students, whilst the courses in English philosophy are committed to a secondary place. I can not think that this is exactly as it should be. And I say this not out of national jingoism, for jingoism has no place in philosophy; or out of excitement over the great Anglo-American alliance against the world, of which we nowadays hear so much—though heaven knows that to that alliance I wish a God-speed. I

say it because I sincerely believe that the English spirit in philosophy is intellectually, as well as practically and morally, on the saner, sounder and truer path. Kant's mind is the rarest and most intricate of all possible antique bric-à-brac museums; and connoisseurs and dilettanti will always wish to visit it and see the wondrous and racy contents. The temper of the dear old man about his work is perfectly delectable. And yet he is really—although I shrink with some terror from saying such a thing before some of you here present—at bottom a mere curio, a 'specimen.' I mean by this a perfectly definite thing: I believe that Kant bequeathes to us not one single conception which is both indispensable to philosophy and which philosophy either did not possess before him, or was not destined inevitably to acquire after him through the growth of men's reflection upon the hypotheses by which science interprets nature. The true line of philosophic progress lies, in short, it seems to me, not so much *through* Kant as *round* him to the point where now we stand. Philosophy can perfectly well outflank him, and build herself up into adequate fullness by prolonging more directly the older English lines.

WILLIAM JAMES.

HARVARD UNIVERSITY.

REVIEWS AND ABSTRACTS OF LITERATURE

Adolescence. Its Psychology and its Relation to Physiology, Anthropology, Sociology, Sex, Crime, Religion and Education. G. STANLEY HALL, Ph.D., LL.D., President of Clark University and Professor of Psychology and Pedagogy. New York, D. Appleton and Co. 1904. Vol. I., pp. 589; Vol. II., pp. 784.

In the preface Dr. Hall says, "The genetic ideas of the soul which pervade this work are new in both matter and method, and if true they mark an extension of evolution into the psychic field of the utmost importance." He emphasizes the necessity of studying life and history and says, "We must collect states of mind, sentiments, phenomena long since lapsed, psychic facts that appear faintly and perhaps but once in a lifetime and that in few and only rare individuals, impulses that, it may be, never anywhere arise above the threshold, but manifest themselves only in automatisms, acts, behavior, things neglected, trivial and incidental, such as Darwin says are often most vital. We must go to school to the folk-soul, learn of criminals and defectives, animals, and in some sense go back to Aristotle in rebasing psychology on biology, and realize that we know the soul best when we can best write its history in the world and that there are no finalities save formulæ of development. The soul is thus still in the making and we may hope for an indefinite further development. . . . In a word, the view here represents a nascent tendency

and it is in striking contrast to all those systems that presume to have attained even an approximate finality. But the twilight is that of dawn and not that of evening. It is the morning hour of beginning and not that of completing the day of work, and this can appeal only to those still adolescent in soul."

The reader who notices attentively the subtitle and the above portion of the preface will be in part prepared for the extraordinary breadth of treatment given every phase of the subject and the marshaling of facts, often exceptional rather than typical, from every field of science, literature and life in a way to suggest countless possibilities with only slight attempts at final conclusions or ultimate points of view.

His conception of the relation of the past history of the race to individual development and to educational practice, and his semi-poetic, semi-technical style are well illustrated by the following passages: "Thus the boy is father of the man in a new sense that his qualities are infinitely older and existed, well compacted, untold ages before the more distinctly human attributes were developed. Indeed there are a few indications set forth in the text of a yet earlier age—nodality or meristic segmentation, as if amid the increased instabilities of health at the age of about six we could still detect the ripple marks of an ancient pubic beach now lifted high above the tides of a receding shore line as human infancy has been prolonged."

"The teacher's art should so vivify all that the resources of literature, traditions, history can supply which represents the crude virtues of the world's childhood, that with his almost visual imagination, reinforced by psychonomic recapitulatory impulses, the child can enter upon his full heritage, live out each stage of his life to the fullest and realize in himself all its manifold tendencies. Echoes only of the vaster, richer life of the remote past of the race they must remain but just these are the murmurings of the only muse that can save from the omnipresent dangers of precocity."

Dr. Hall calls this essentially his first book and says: "It has grown slowly under successive repetitions and amplifications as a lecture course to graduate students. It constitutes the first attempt to bring together the various aspects of its vast and complex theme. In revising these lectures for publication, I have eliminated much that was technical and detailed and tried to bring the subject-matter within the reach of any intelligent reader."

The latter statement may be questioned by some readers as they encounter one technical term after another. The following words taken from a single chapter give some idea of the stupendous vocabulary possessed by our author and the extent to which he carries the technical terms of every science over into the psychic field of thought: *heterochrony*, *virified*, *transvaluation*, *catharsis*, *psychonomic*, *psychophores*, *archæology*, *phylogenetic*, *entelechy*, *photodermatism*, *psychromes*, *vicariate archeopsychism*, *phyletic*, *solipsistic*, *meristic*, *apical*, *ancillary*, *soteriological*, *efflorescence*, *neopsychic*, *dotations*, *viaticum*, *protensive*, *pathic*, *erethic diathesis*, *disphoria*, *atrabiliar*, *ephebeitis*, *ego-centric*, *altro-centric*,

pithecoïd., troglodyles, monophyletic, amphimixis, erogamy, cunabula, superanthropoid.

The first chapter treats exhaustively of growth in height and weight, and in it are given all the chief theories, tables, conclusions and practical applications regarding the nature of growth and the factors influencing it that have been put forth by investigators of every nationality. These, however, are not critically examined and closely correlated, yet no opportunity is missed to emphasize the theory expressed in the following: "Through all the latter stages of his growth we can almost fancy that in the individual arrests and accelerations that make up its minor rhythms we detect the ripple marks on successive old shore lines which represent once final stages and emergence to maturity, but which are now successively transcended."

The second chapter treats in an equally exhaustive manner of the growth of parts and emphasizes the following points: (1) "Parts do not grow in equal ratio." (2) "Few parts grow steadily." (3) "Not only do different parts reach their maximal size at different ages but some continue to grow well on into old age." (4) "It is well to remember that from a larger biological view, every higher animal is not only composed of organs phyletically old and new but that the order of their development may even be changed." (5) "In the present state of the question between preformation and epigenesis we shall assume that the earlier stages of life are more conformable to Weismannism and the later to the views of Hertwig."

It is rather surprising that answers to *questionnaires* regarding growth are quoted almost as if on a par with tables constructed from thousands of exact measurements.

Chapter III., on 'Growth of Motor Power and Function,' is equally exhaustive, better correlated and full of excellent practical suggestions, treating as it does of industrial and manual training, gymnastics, plays and games and their broader social and educational significance.

Chapter IV. treats of disease of body and mind, particularly with reference to adolescent changes, with a fullness of technical detail that should be suggestive to well-read physicians as well as to educators, though exceptional cases are given great prominence.

Chapter V. tells of every possible juvenile fault, immorality and crime, and presents countless theories as to causes and modes of cure. The following is one of the best expressions of the author's view: "Educators have no doubt vastly overestimated the moral efficiency of the three R's and forgotten that character in infancy is all instinct: that in childhood it is slowly made over into habits: while at adolescence more than at any other period of life it can be cultivated through ideals. The dawn of puberty, although perhaps marked by a certain moral hebetude, is soon followed by a stormy period of great agitation when the very worst and best impulses in the human soul struggle against each other for its possession and when there is a peculiar proneness to be either very good or very bad. As the agitation slowly subsides it is found that there has

been a renaissance of either the best or the worst elements of the soul, if not indeed of both."

'Sexual Development and Its Dangers and Hygiene in Boys' have probably never received as full, absolutely frank and sane treatment as is given in chapter VI., while chapter VII. on 'Periodicity' is chiefly a continuation of the discussion of certain phases of the sex problem important in the life of females, and, perhaps, of some significance in the life of males.

Greek literature, history, autobiography, Shakespeare and modern literature are cited and quoted at length in chapter VIII., as sources of descriptions of adolescents.

In chapter IX. we have a summary of all experiments showing changes with age in the senses and the voice together with their diseases and training. Chapter X., on 'Evolution and the Feelings and Instincts Characteristic of Normal Adolescence,' gives, also, a preliminary statement of Dr. Hall's philosophical and psychological theories that are implied all through these two volumes and are to receive fuller treatment in a subsequent work.

In chapter XI. not only 'Adolescent Love' but pre-adolescent love receives very full treatment, and here, as in nearly every chapter, the close relation of sexual functions to mental activities is emphasized.

Chapter XII., on 'Adolescent Feelings toward Nature,' contains much that is interesting and poetical, but little that is scientific, being based almost wholly on answers to *questionnaires* as to thoughts and fancies regarding the sun, moon, light, darkness, water, flowers, etc.

Chapter XIII. treats of 'Savage Pubic Initiations, Classical Ideals and Customs and Church Confirmation.'

Chapter XIV., on 'Adolescent Psychology of Conversion,' emphasizes the closeness of relation of religious and sexual development (which has been shown in a number of recent studies) to which Dr. Hall first called attention.

The first part of chapter XV., on 'Social Instincts and Institutions,' is largely based on recent *questionnaires* sent out from Clark, and contains little in addition to what has already been published; while the latter part has some good suggestions regarding college, religious and other organizations, and the relation of debates, rhetoric, reading and acting to social and mental development.

Chapter XVI., on 'Intellectual Development and Education,' treats almost wholly of education and the relation of educational practices to interests and the stages of development at each stage. According to his view formal education should begin at eight and end at twelve, while training during adolescence should be broad and inspiring, rather than deep and accurate.

Chapter XVII., on 'Adolescent Girls and their Education,' treats very fully of the differences between man and woman and very suggestively of female education and of coeducation. Chapter XVIII. is on 'Adolescent Races and their Treatment.'

On the whole the book is one easy to praise enthusiastically or to

criticize mercilessly according to the point of view taken. Those who care only for a science and a pedagogy that are systematic, accurate and well established, probably will find in these two bulky volumes nothing that they regard as scientifically reliable or pedagogically practical. Anything in science that is thought to be completely settled is, to Dr. Hall, a thing of no interest or the object of an attack designed to unsettle it. As the great Edison loses all interest in his machines as soon as they work perfectly, so Dr. Hall has no use for a field of science or a pedagogy that is regarded as complete. He delights in bringing together the most diverse facts and theories, suggesting various practical applications, yet grouped in such a way as to emphasize the vaguely known and half-guessed experiences of the remote human and animal ancestors of man. His generalizations are usually accompanied by a 'perhaps,' and in most cases are most enthusiastically affirmed when they are broadest, most indefinite and least readily testable by experiments. Systematizers will, therefore, find much in the book to criticize and little to commend, while to others it will be a wonderfully suggestive revelation.

Dr. Hall everywhere emphasizes the unusual, abnormal, hidden, over the common, usual and evident in fact and explanation. All this is in accord with his views expressed in the preface. This practice is also undoubtedly most favorable to success as a leader of young investigators who are so likely to accept the system of their instructor, if he has one. Probably Dr. Hall's natural tendency of mind has been consciously developed in this direction by his knowledge of this fact and the origin of the book in lectures to men engaged in original research. Certainly no man of his age, if indeed of any age, has been a more inspiring leader of young investigators. A very large proportion of all investigations in genetic psychology and pedagogy in America, during the last score of years, has been carried out under his direction or is the result, directly or indirectly, of his influence.

If Dr. Hall had devoted the great powers of his mind to the working out of a system and the establishment of a few general principles, he might himself have made a much more valuable contribution to exact science, but then much of the work already done and yet to be done as the result of his influence would have been delayed and perhaps would never have been done. If Dr. Hall's name does not go down to future ages as that of a great philosopher and scientist it may be because he has given up his life to inspiring others to investigate and think and to the dissemination of broader views of education among the parents and teachers of America.

The one theory to be established in all Dr. Hall's writings and to which, should it ever be established, his name will be forever attached, is the theory of psychic recapitulations which is graphically and almost poetically expressed in the following quotations: "The psychonomic law which assumes that we are influenced in our deeper, more temperamental dispositions by the life habits and codes of conduct of we know not what unnumbered hosts of ancestors, which like a cloud of witnesses are pres-

ent throughout our lives, and that our souls are echo chambers in which their whispers reverberate."

"We have to deal with the archæology of mind, with zones or strata which precede consciousness as we know it, compared to which even it and especially cultured intellect is an upstart novelty with everywhere a fuller and clearer expression of a part of the soul but always partial, one-sided and more accidental and precarious."

"It is well not to entirely forget that in the great cosmic order revealed to the evolutionist, the mind which modern analysis so carefully dissects, may be merely a development stage of that of a higher type."

"Man can with difficulty form any conception of how the world appeared to the majority of even existing types: what their senses were and could do: what perceptive elements they were sensitized to: what their instincts and organs were: how they reared their young, obtained their food, mated, fought their enemies, organized their societies, etc. Many of them are in our pedigree and we inherit the stored result of this experience but of how it was stored up we know little. Our own soul is full in all its parts of faint hints, rudimentary specters flitting for an instant at some moment of our individual life, then gone forever."

This is interesting, stimulating, yet sadly indefinite, and we are compelled to admit that the theory lacks the definiteness of a scientific hypothesis. It gives us no idea of the law by which the psychic traits of our human and animal ancestors are preserved or suppressed, and their consequent prominence determined in the mind of man to-day. We are left with no other guide than speculative fancy. Each man is free to seize upon whatever 'fleeting specter' of the past he pleases and speculate as to its source as Dr. Hall does, but no knowledge of the laws governing the common and constant activities of the mind can thus be established for science or for education. The Newton of psychology has not yet appeared, though Dr. Hall has probably shaken the tree under which he is to reflect.

As a whole, the work is probably more of a contribution to education than to psychology. Education is as much an art as a science, and its highest forms are as far beyond any principles that can be formulated and mechanically applied as are the works of great poets and artists. Dr. Hall is as much an artist as a scientist, and his vision of what education should be and may do in the future, inspired by his wonderful survey of the past and present activities of the race, may be a prevision of what will sooner or later be established as most fundamental in educational principles and practices. At present, however, it must be admitted that his views are not established by definite, reliable, scientific data. Whether his conclusions are correct or not, it is to be regretted that much of the *questionnaire* data, so relied upon by Dr. Hall, has not been secured or tabulated according to the most approved statistical and scientific methods.

On the other hand, no one has ever taken such a broad biogenetic view of education as has Dr. Hall, and his Yankee *guesses* may be better than some of the mechanical, scientific *calculations* of other investigators.

However this may be, such a broad and inspiring view of education as Dr. Hall has given in his lectures and published papers and manuscripts, and now summed up in these two volumes, can not fail to be in the future, as it has been in the past, a great leavening force in psychology and all educational thought and practice from the kindergarten to the university.

E. A. KIRKPATRICK.

STATE NORMAL SCHOOL, FITCHBURG, MASS.

On Truth and Practice. F. H. BRADLEY. *Mind*, July, 1904, pp. 309-354.
Humanism and Truth. WILLIAM JAMES. *Mind*, October, 1904, pp. 457-475.

In the July number of *Mind*, Mr. Bradley gives recognition to the new philosophy of pragmatism in an article on 'Truth and Practice.' (1) Truth does not consist in bare practical effects. It does not always subserve practice directly; and even where, as is the case in the beginnings of thought, it has an existence only as the idea works practically, its essence is not in such working. It is able to work because it is the right idea. The idea makes the situation different, but the entire nature of the situation was not first made by the idea. If it is to work, it must correspond to a determinate being which it can not be said to make; and in this correspondence consists the essence of truth. This is shown, on the positive side, by the compulsion we are under from the situation in the choice of means to an end; and, negatively, in the case of failures, where there is a recognition of truth which certainly is not an 'idea which works.' (2) Objection is taken to the theory of practice for practice's sake. The meaning of practice is ambiguous. Defining it as the alteration by me of existence inward or outward, all truth is in a sense practical. It is practical, too, in that it depends upon a need or an interest in me. But among the ways in which my nature is realized, there are some—the pursuit of theoretical truth, and beauty—which may be called non-practical. They involve the alteration of being only incidentally, and are not subordinate to an external end. The moral end may dictate their pursuit and set limits to it, but their nature falls outside moral control. In a further examination of the various senses in which we may subordinate truth to practice, Mr. Bradley tries to show that there is always something outstanding in the way of a theoretical truth, which dictates to practice.

In the October number, Professor James makes a reply. As, however, he finds Mr. Bradley's paper wholly irrelevant and unedifying, his answer takes the form of a restatement of his own position. Humanism takes its rise in the changed attitude toward scientific truth. This is no longer regarded as a literal transcript of something in nature, but as a human device, a conceptual shorthand, true so far as useful, but no farther. Generalizing this, we have the new pragmatistical philosophy. The notion of a first in the shape of a chaotic pure experience which sets us questions, of a second in the way of fundamental categories, long ago wrought into the structure of our experience and practically irreversible, which define the general frame within which answers must fall, and of a third

which gives the details of the answers in the shape most congruous with our present needs, is the essence of humanism. The independence of reality is a fact, in the sense that there is something in every experience that escapes our arbitrary control; but this push or urgency is within our experience, not outside. Truth thus means the relation of less fixed parts of experience to other relatively more fixed parts, and not a relation of experience to anything beyond itself. Objectivity is simply the claim of rival experiences to maintain so far as possible each its own reality. There is no basis, therefore, to the objection that for the pragmatist truth must be wholly indeterminate and arbitrary. Nor does this view need to lessen the enthusiasm for truth. The true is the opposite of whatever is unstable, practically disappointing, useless or uncomfortable; what wonder that its name awakens loyal feeling? That which lies back of hostile criticisms is the old notion that thought must *copy* reality. But the essential thing in the conception of knowledge is simply this: it is a way of getting into fruitful relations with reality. Those thoughts are true which guide us to beneficial interactions with sensible particulars, whether they copy them in advance or not. In point of fact, as an examination of typical instances shows, the copy idea is comparatively unimportant. The test is satisfaction. If, indeed, by truth we mean truth taken abstractly and verified in the long run, we can not equate truth and present satisfactoriness. But comparing concrete with concrete and abstract with abstract, truth and satisfactoriness are the same. A confusion here is one of the reasons for the difficulties found in humanism. We recognize the need of a standard beyond the present feeling; and then this standard is interpreted as applying to experience as a whole, instead of to each experience separately; as lying outside of experience, instead of perpetually growing up within the web of experience itself. And if reality grows, why not in these very determinations that are here and now made by thought?

Professor James seems hardly to have done justice to Mr. Bradley's difficulties. His discussion is enlightening in spots, but it fails to straighten out the situation as a whole. The doctrine that the judging thought adds to reality, which in some sense every one would accept, is so qualified in statement that it is hard to get a clear idea of just how far it is intended to apply; and, without knowing this, a discussion of pragmatism as a fundamental philosophical principle is very much in the air. It seems to be admitted that a reality may be there even if our particular thought is annihilated; but if so, its nature can hardly be irrelevant to the way in which our thought is to judge of it. To be sure, this reality is supposed to be merely experience other than our own. But this ignores the fact that the popular appeal of the pragmatist argument depends upon the interpretation of it in terms of the individual's experience, while the conception of reality as an agglomeration of experiences is quite another story, which may or may not be consistent with pragmatism as such, and which, at any rate, if it has to be used to piece out the theory, needs to be carefully stated and defended on its own merits. Another difficulty lies in the fact that in his choice of illustrations Pro-

fessor James has neglected just that kind which Mr. Bradley emphasizes. It is not difficult to understand how we are coerced by past habits of thought ingrained in our nature. But except as we can discover the source of determination in the present or past structure of experience, what real meaning is there to the claim that experience guides itself? In sense perception, in particular, the difficulty will continue to be raised, just because there is in experience, unless taken in some esoteric sense, nothing to explain the insistence of this, and its independence of our will. Experience may determine the form in which I am to see a lion in the path, but what in experience brings the lion there? Neither does the conception of *implicit* truth seem in such a case to have any application.

In another point Professor James seems to me to overlook the force of Mr. Bradley's contention. And the reason is that he leans too heavily upon the new logic of science. But does science, with its utilitarian end, really exhaust the whole value of the knowing experience? Is not the 'love of truth' in the old-fashioned sense too vital a thing to be dismissed summarily? At any rate, when the reality in question is of a *personal* sort—and in connection with the religious experience this might conceivably become of central importance for our view of reality—is not the idea of personal *communion* essential in knowledge? And does not this involve the actual mirroring of the nature of the real being we know, as something quite over and above the mere problem of getting a result for ourselves?

A. K. ROGERS.

BUTLER COLLEGE.

The Heart of Mr. Spencer's Ethics. FRANKLIN H. GIDDINGS. *The International Journal of Ethics*, July, 1904. Pp. 496-499.

The formulation of a system of scientific ethics was the crowning achievement of Mr. Spencer's intellectual career and the heart of that system was its ideal of social and industrial peace. In a conversation with the writer of this article, Mr. Spencer, in 1896, stated that it was one of the greatest disappointments of his life that the world had reverted to the militarism which it ought to have outgrown. Nevertheless, according to his own principles, such a relapse must necessarily occur whenever a stronger race comes into contact with a weaker, the warfare continuing until stable equilibrium is again reached by the conquest or transformation of the latter. Mr. Spencer's inability to reconcile himself to this necessary process is evidence 'of the intensity of his abhorrence of all aggression.' Yet this equilibration will not inevitably take the form of an extermination of the weak but more and more the energies of the strong will transform the weak in humane ways, above all by economic stimulation and educational uplifting.

NORMAN WILDE.

UNIVERSITY OF MINNESOTA.

JOURNALS AND NEW BOOKS

VIERTELJAHRSSCHRIFT FÜR WISSENSCHAFTLICHE PHILOSOPHIE UND SOCIOLOGIE. September, 1904, Band XXVII., Heft III. *Der Einfluss der Dunkelheit auf das Seelenleben des Menschen*

(pp. 255-279): C. M. GIESSLER. - Under the influence of darkness the psychological activities of man revert to those of earlier stages of his development. Logical thinking and moral judgment tend to disappear. Processes are slower and demand more effort; while the content lacks scope and energy. *Die Grundlage des Wahrscheinlichkeitsurteils* (pp. 280-317): E. v. HARTMANN. - Much confusion results from supposing probability to be a mean between truth and error; whereas it is merely a mean between certainty and uncertainty. Philosophy has fallen into the extremes of dogmatism and scepticism because she has failed to distinguish between the probable and the possible and problematic. The concept of probability is attained from the apportionment of the certainty of a 'total' judgment between the members of the disjunction. And the fundamental problem is to state the character of cases of equal probability. This is here done. *Die Geschichte der Erziehung in soziologischer Beleuchtung. III.* (pp. 318-339): P. BARTH. - Education everywhere has for its object solidarity rather than individuality. This is exemplified more fully than is commonly supposed by the education of the Greek and Roman youth. Gymnastic was for war, music for the social religion. Aristotle, but not Plato, insisted on the worth of individual development. Roman education was left to the family but had for its end the state. *Besprechungen* (pp. 340-360): E. Durr, *Über die Grenzen der Gewissheit*: NATH. O. Weiniger, *Geschlecht und Character*; and *Über die letzten Dinge*: NATH. A. B. Hauschmann, *B. Palissy, der Künstler*: RENNER. *Dessoir u. Menzer, Philosophisches Lesebuch*: RENNER. E. Schrader, *Zur Grundlegung der psychologie des Urteils*: RENNER. G. Portig, *Die Grundzüge der Monistischen und dualistischen Weltanschauung*: RENNER. K. Warmuth, *Wissen und Glauben bei Pascal*: RENNER. T. J. de Boer, *Geschichte der Philosophie im Islam*: RENNER. M. Ettinger, *Untersuchungen über die Bedeutung der Deszendenztheorie für die Psychologie*: SCHALLMAYER. M. W. Shinn, *The Biography of a Baby*: KRUEGER. O. Liebmann, *Gedanken und Tatsachen*: KRUEGER. *Philosophische Zeitschriften. Bibliographie. Notiz.*

Besser, L. *Seele u. Sittlichkeit*. Bonn: Hager. 8vo. .50 m.

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Fridell, E. *Novalis als Philosoph*. München: F. Bruckmann. 1904. 110 pp. 2 m.

Horn, F. *Platonstudien. Neue Folge: Kratylus, Parmenides, Theätetos, Sophist, Staatsmann*. Wien: Holder. 8vo. .40 m.

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Lindner, T. *Geschichtsphilosophie*. Stuttgart: Cotta. 1904. 241 pp. 6 m.

Krug, R. *Die Zulässigkeit der reinen Wollens-bedingung*. Marburg: Elwert. 1904. 8vo. 3 m.

- Messer, A. *Kants Ethik; eine Einführung.* Leipzig: Veit. 1904. 406 pp. 9 m.
- Royce, J. *The Conception of Immortality.* London: Constable. 1904. 32mo. 2s. 6d.
- Torres, G. *Willensfreiheit u. wahre Freiheit.* München: Reinhardt. 8vo. 1 m.
- Volkelt, J. *System der Aesthetik. I.* München: Beck. 8vo. 10 m.
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- Zerbst, M. *Die Philosophie der Freude.* Leipzig: Naumann. 1904. 4 m.

NOTES AND NEWS

WE reprint from the London *Times* of October 29 the following account of the commemoration of the bicentenary of the death of John Locke by the British Academy:

A special meeting of the British Academy was held on October 28, 1904, at the room of the Society of Antiquaries, Burlington House, to commemorate the bicentenary of the death of John Locke, who died at Oates, in Essex, on October 28, 1704. Dr. Edward Caird, Master of Balliol College, Oxford, presided.

Mr. I. Gollancz, secretary, read a letter from Lord Reay, president of the Academy, regretting that he was not well enough to travel from Scotland to attend the meeting.

The chairman said that when the Academy decided to celebrate the bicentenary of Locke's death they all thought it appropriate that the veteran philosopher, Professor Campbell Fraser, should be asked to deliver an address. Unfortunately the professor, owing to his old age and indifferent health, was unable to be present; but he had sent a paper, which would be read by the secretary.

Mr. Gollancz then read Professor Campbell Fraser's address, which was entitled 'John Locke as a Factor in Modern Thought.' The 'Instauratio' of Bacon and the 'Essay on the Human Understanding' of Locke were the most memorable works in English philosophy. The splendid vision of Bacon embraced exhaustive unification of knowledge as within the reach of a future age. The 'Essay' of Locke seemed to throw cold water on the sanguine conception of Bacon, and made him ready to resist the faith that human understanding could ever compass the ideal which inspired the 'Instauratio.' Instead of its expectation of complete intellectual empire, Locke announced that his sober purpose was to investigate the inevitable boundary of human knowledge, and the probabilities on which we have to rest when absolute knowledge was necessarily unattainable. The vain endeavors of philosophers in the past warned Locke of the need of a humbler ideal. Beginning at the wrong end, they took for granted, without preliminary criticism of possibilities, that the infinite extent of being was the possible intellectual possession of the mind of man. But we have no need to complain of the necessary limitation of our knowledge, if we could have what served all human purposes. At any rate, according to Locke, our intellectual empire must be finally measured by experience. In that all our knowledge was founded, and from that it all derived itself. The task of the philosopher was to analyze experience; at least, that

was his supreme duty in Locke's generation. In this he led the way, leaving much to be done by his successors. Our estimate of the philosophy of Locke depends upon the meaning to be associated with the word experience. Here Locke's ambiguity was his weakness as a factor in modern thought. But it led, through Hume, to the altered attitude of Kant, followed by Hegel, which had since modified theology and metaphysics. Yet the shyness of Locke when he approached the crucial instances, and the ultimate rational constitution of experience, was due to the enemy of truth that he thought he saw in ideas and principles called 'innate' favored by the speculative ambition of philosophers, and in common life by the indolence of man. Hence the empty verbalism of the philosophers and the hard dogmatism of the multitude who were too lazy to think for themselves, and who stopped inquiry about all that was called 'innate.' Locke was apt to be forgotten now, because long ago he so well fulfilled his office of awakening criticism of the limited human understanding, and diffusing the spirit of free inquiry, with its implied spirit of universal toleration in accommodation to the added limitations of individual experience, which had since pervaded the civilized world. He had not bequeathed an imposing system, nor even any striking discovery in metaphysics. 'If Locke made few discoveries, Socrates made none.' Both were memorable in the record of human progress.

The secretary said that Sir Frederick Pollock, who was in Paris attending the celebration of the centenary of the Civil Code, had sent a paper entitled 'Locke's Theory of the State,' which he would read.

Sir Frederick Pollock stated in the course of his paper that Locke's 'Essay on Civil Government' was probably the most important contribution ever made to English constitutional law by an author who was not a lawyer by profession. Certainly there was nothing to be compared to it until we came to Bagehot in our own time. The first thing to bear in mind about the 'Essay on Civil Government,' was that it was essentially an apologia for the Convention Parliament no less than Hobbes's 'Leviathan' and 'Behemoth' were an indictment of the Long Parliament. The doctrine which Locke had to confute was that of absolute Monarchy. The impossibility of a limited Government or 'Mixarchy' was the burden of Hobbes's 'Behemoth.' At the outset the object of inquiry was thus defined by Locke: "Political power I take to be a right of making laws with penalties of death, and consequently all less penalties, for the regulating and preserving of property, and of employing the force of the community in the execution of such laws and in the defence of the Commonwealth from foreign injury, and all this only for the publick good." The last clause, 'and all this only for the publick good,' gave the keynote of the whole essay. Princes and rulers held their power, whatever might be their legal form, not by an absolute right founded on grant, covenant, or otherwise, but on conditions in the nature of a trust, and under liability to forfeiture if the conditions were not fulfilled. Locke was no lawyer; but it was allowable to believe that the peculiar doctrines of the English Common Law as to conditional estates, and of English Courts of Equity as to the duties of trustees, although the latter was still in its infancy, had a distinct influence in moulding his dialectic. For absolute originality there was no room. Every kind of material for political construction was ready to hand in the polemics of the Reformation controversy, not to speak of the medieval writers who had become to Locke's contemporaries far more obscure than they were to us. The researches of modern scholars, among whom the first place was undoubtedly Gierke's, had shown that all possible theoretical combinations, except the much later system of Cabinet Government, which had democratized

our Monarchy, were anticipated, if not developed, by the political writers of the sixteenth century. Locke's work was inevitably eclectic, and must have been so even if it had not been conditioned by a definite practical aim. He was so far from professing to be original that he was almost ostentatious in following Hooker, whom he vouched at several points in fairly copious extracts. Hooker, of course, was an authority whom Anglicans were bound to treat with respect. The skill and judgment of Locke's performance were proved in the most conclusive manner by the commanding position which the doctrine formulated by him acquired forthwith and held for nearly a century. Locke's political system, like all such systems, for a long time before and a long time after him purported to be founded on natural law; that was, on rules of conduct which the light of reason, without aid of any special revelation and without assuming the existence or authority of any law of society, could discover as generally applicable to man as a rational being. This was what Locke's contemporaries understood by the law of nature. Locke thought it prudent to establish a natural right of property antecedent to political institutions. His solution of the problem was that appropriation was the reward of labor. A man acquired a right in that which 'he hath mixed his labor with.' The preceding assumption that 'every man has a property in his own person' appeared safe and easy to Locke, but it was not good law. The rights of every man to personal safety, reputation, and so forth were not marketable or transferable, and were wholly distinct in kind from rights of property. Property could not be made secure by natural right alone; and for the better securing of their properties men had entered into civil society. The will of the body politic, when formed, was determined by the will of the majority. A body politic, then, was formed by consent. The essential term of the agreement was that every member gave up his natural judicial and executive power to the community (not, as Hobbes maintained, to an irresponsible Sovereign); and this consent was renewed, tacitly if not expressly, in the person of every new member; for one could not accept the benefit of a settled government except on those terms on which it was offered. The legislative power, once constituted by consent, was the supreme power in the Commonwealth, but not arbitrary. The reason of its supremacy was given very shortly in the passage, 'What can give laws to another must needs be superior to him.' But the legislative authority was bound by its trust and by the law of nature to govern by established laws, to act in good faith for the common advantage, not to raise taxes without the consent of the people by themselves or their deputies, and not to transfer its power of making laws (being only a delegated power) to any other hands. This was the most meager and last satisfying part of Locke's work. He did not seem to conceive the possibility of a legislature having powers limited by express convention, but plenary within those limits; nor did he consider at all the partial exercise of legislative power by bodies having a merely delegated authority. He could not be expected to anticipate the constitutions of self-governing colonies, but he must have known that the University of Oxford and his own House had statutes; and he must have desired to see the latter, at any rate, better secured from arbitrary interference than they had been in his own case. Yet he did make a very apt reference, in distinguishing absolute from arbitrary power, to the example of military discipline, where the officer may have power of life and death over the soldier, but can not 'dispose of one farthing of that soldier's estate, or seize one jot of his goods.' Neither did Locke touch at all on what was now called constitutional amendment, except negatively. He seemed to assume that nothing of the kind can be done, in any form of

government, without express provision for that purpose. What made the omission of argument on this point the more remarkable was that Sir Thomas Smith, writing a century and a quarter earlier, in his '*Commonwealth of England*,' had enounced the unqualified sovereignty of Parliament in terms so full and explicit that Blackstone, after the lapse of just two centuries, could add nothing to them; while, on the other hand, the necessity of unalterable 'fundamentals' in any scheme of government had been much discussed under the Commonwealth, and maintained by Cromwell himself among others. The 'power of assembling and dismissing the legislature' might be vested in the Executive by the Constitution, but, like all governmental powers, it was held in trust for the public, and abuse of it might justify the people in recourse to their ultimate rights. On the other hand, Locke suggested that the representation of the people in the Legislature might, perhaps, be amended at the discretion of the Executive, provided that such action was taken in good faith. Parliamentary reform by Order in Council was not so obviously remote from practical politics two centuries ago as it was now; but what English princes down to Elizabeth had done in the way of creating new boroughs was not of encouraging example; and Locke's suggestion was not taken seriously by any one. The failure of Temple's plan to establish an efficient and independent Privy Council had in truth made it impossible beforehand. It was an important question, but a question of modern politics and far outside Locke's field of view, whether the latent capacities of the Privy Council might not yet be developed for the purposes of coordinating the resources of the Empire and giving the self-governing colonies an effective share—all the more effective for not being too rigidly defined—in the handling of affairs of common interest. The subsequent influence of Locke's '*Essay*' might be traced, as the President of Corpus had hinted, not only throughout the formal political philosophy of the eighteenth century, but in the doctrine received among English constitutional lawyers, and in the principles enounced by the promoters of American independence and the conductors of the French Revolution in its early stages. Blackstone substantially followed Locke, though he borrowed some ornamental phrases, not to be taken too seriously, from continental writers. He was prudent enough, indeed, to repudiate the assumption of mankind having actually lived in a state of nature, and proceeded to form society by a 'convention of individuals'; and, writing as a lawyer, he was naturally more anxious than Locke to vindicate the Revolution settlement as, not only justifiable, but legal. It was none the less true that Bentham when he sounded the note of destructive criticism in his '*Fragment on Government*,' was really attacking Locke's theory of the state through Blackstone. Again, Blackstone's '*Commentaries*' were a vehicle of Locke's doctrine (though not the only one) to a numerous and public-spirited audience in the American colonies; and that doctrine was at the foundation of the several Bills of Rights of the American States, among which Virginia gave the first example, and of the Declaration of Independence itself. More than this, it had been shown by modern American scholars that these instruments became well known in France, and served as precedents for the Declaration of the Rights of Man. On the whole, it seemed that Locke had as much to do as Rousseau with the Principles of 1789, or more. The fatal domination of Rousseau's ideas belonged to a later stage. It would be idle to consider what Locke himself would have thought of his latest spiritual posterity.

Votes of thanks were passed to Professor Campbell Fraser and Sir Frederick Pollock for their papers.

THE JOURNAL OF PHILOSOPHY

PSYCHOLOGY AND SCIENTIFIC METHODS

ON THE METAPHYSICAL SIGNIFICANCE OF RELATIONS

RELATION is the primal category of thinking. One's conception of the meaning and function of relations contains the key to one's entire metaphysics. And I propose to consider here very briefly what must be the fundamental or ultimate type of relation if we have a valid knowledge of reality. In other words, presupposing that thought does get at the real world, what is therein involved as to the relational character of the real? For purposes of provisional definition we may say that *A* and *B* are related if some assertion concerning *A* warrants any assertion concerning *B*. If *A* is related to *B* as father to son, then an assertion concerning *A*'s age warrants some assertion concerning *B*'s age, but does not enable us either to affirm or to deny that *B* habitually wears a red necktie.

The naïve view is that the relating activity of thought is wholly external to the real behavior of things. But a little reflection makes it plain that this view is untenable. We can not separate the relation of things to one another from their relations in our experience. It makes all the difference in the world to a wild-cat and to his other prey, as well as to me, whether I apprehend his spatial relations when he stalks me from a tree in a dark wood. Consciousness of relation is itself a relation internal to the world of actual and possible experience. An object is *not the same* for our experience before and after our discovery of new relations in which it stands. We feign that it is the same.¹

The color spectrum is not the same to him who is able to distinguish one hundred and fifty color qualities and for him who sees only the eight standard colors from red to purple. The red which I compare with purple is different for me from the red which has not been explicitly compared with any other color, and for a man who lived entirely in a red universe, red would not be the same as

¹Hume said this, of course, and it was the beginning of his scepticism. From this position there is no way back to naïve realism. The only choice open is to stick in scepticism or go forward to an objective idealism.

it is for me who am not at all color-blind. Nor can we draw a hard and fast line at any point and say, here cognized thought relations become wholly external to the actual processes and natures of things. Even the geological structure of the earth and perhaps the entire arrangements of the solar system are affected by human thought-relations. Thought modifies *some* of the relations of seemingly external things and processes and we are not able to set a limit to this modification of things by consciousness or to assert that anything is utterly and absolutely indifferent to thought's relating activity. To make such an assertion is to attempt to leap out of experience and its world into the inane and the unintelligible. Even 'chaos' is a relative term.

Discursive thinking is essentially relational. Its success is based on actual connections between real elements. We do not *know*, either for practical or for theoretical purposes, the actual behavior of things and the real meaning of experience except through apprehension of relations, and these must be implicit in immediate or 'pure' experience. The cognized and cognizable existence of things (and there is no sense in talking about any other sort of existence) is the relation of things to an attending and comprehending mind. The relations of things to one another, however extra-mental they may seem to be, can not be separated from this fundamental relation of thing or event to the mind. When I say this rose smells sweeter than that one or this stone is heavier than that one the thought of the stated relation between the two objects is the explication of the relation of the two objects to me. Relations, then, must somehow belong to the very nature of reality. The validity of thought's relating activity, *i. e.*, the validity of all reflective cognition implies that our progressive discrimination and comparison of things results in the discovery of the actual relations of the elementary things and processes of reality.

It does not follow that every relational junction which I effect between separate concrete elements of experience is absolutely true of reality precisely in the way in which my thought effects it. Practical experience constantly warns us not to confuse the psychological processes of discovery with the actual movements and 'natures' of things. The relations which we assume to hold between objects in most cases get only a rough and ready approximate verification in action. Sometimes these relations are refuted by failure to reach our ends. As we seek to know and control more fully the world of raw experience we are forced constantly to revise our analysis of it into elementary things, processes, and connections static and dynamic. Such revision is the condition of our successful practical synthesis with this world, *i. e.*, of the workability and validity

of our formulated relations or junctions between its elements. Reality is not *alogical*. Every successful operation of thought on the raw material of experience vindicates this assumption. There is an immanent logic in the real movement of the world. But this logic develops slowly alike in the individual, and in the race and its growth is subject to seemingly accidental psychological conditions. Many details of personal biography and racial history are, so far as we can see, wholly irrelevant to and even obstructive of the conscious apprehension of the logic of reality.

Relations then as thoughts in the individual mind do somehow reveal the qualities of things. The characters and processes of things are constantly being changed for our thinking by the discovery of new relations. But, whether the new relations are new only for our minds or are the actual symbols of objective extra-mental changes, they must, if valid, have their roots in the behavior of real things towards one another. The *cognized* characters and processes of things must symbolize manifestations of real action and passion in the elements of being. Persistent thinking about the 'natures' and modes of behavior of things may throw fresh light on them. Indeed, as I have already remarked, increase of knowledge does open up the way to change in real relations through the action of the knower. But the concrete realities in their living connections can neither be produced by the mere consciousness of relations nor abolished by the collapse of specific relations which are discovered to be inadequate. The germs of the consciousness of objective, *i. e.*, valid relations, must lie in the actual immediate influences of things, not in 'qualities' abstracted from things, but these influences may be misinterpreted by thought. Cognitive relations are shorthand renderings in consciousness of the actual behavior of elements of reality and the contradictions, with which, for example, certain space and time relations of things seem to fall, simply show that we have not adequately analyzed our actual experiences of the *togetherness* and movement of things. Our analysis may be at any given time incomplete, but it is not therefore wholly invalid in reference to validity. Hence our inability to render a complete and wholly consistent account of the relations of things proves neither the external and unreal character of all relations nor the illusoriness of the concrete and particular experiences on which these relations are founded. This inability indicates: (1) that experience is more complex than our thinking at any given stage; (2) that it is difficult for the process of thinking to keep pace with the actual movement of things. But the validity of the thinking process involves its vital contact with reality and nowhere more emphatically than in the cognition of relations. For the discovery of relations is the fundamental characteristic of reflective cognition.

The qualities of things are not the creations of thought but the explication of these qualities, and their modification by human action is the result of thought's relating activity working on the *given* or *raw material* of sense-experience in which relations are imbedded from the outset.

It is time to enter on a more detailed and exact analysis of relations preparatory to a consideration of the fundamental conception of relation of which we are in search.

There are two distinct types of relation—*transeunt* and *immanent*. The ordinary causal relation between separate things is the most universal and common case of transeunt relation. When we say this fire was caused by an explosion of gunpowder, we mean that a process or movement in one individual thing has passed over to and produced a change in another individual thing. It has now become a commonplace that the source of the action of transeunt causation is the active relation of the self to the external world. But the process of causation is reciprocal or mutual here as elsewhere. If the mind causes changes in the extra-mental world, it is equally true that extra-mental things cause changes in the mind. Now the extreme difficulty of forming any conception of *how* different things can interact has led, especially in the crucial instance of the relation of mind and body, on the one hand, to a denial of any real causal or efficient interaction as in dualistic parallelism, and, on the other hand, to the endeavor to interpret all interaction as immanent. The latter is the position of abstract monistic idealism.

The character of *immanent* relations is well illustrated by the nature of a living organism and still better by the nature of a single consciousness.² In these cases the unity of connection which constitutes the relation does not result from the reciprocity or interaction of independent elements. The parts of an organism and still more the various aspects of a conscious individual are real elements only in the unity of the whole. They have no real being apart from

² Many mathematical relations are of the immanent type, *e. g.*, the relations between the sides and angles of a triangle. This immanency of relation in a whole which may be internally developed by thought is the foundation for Kant's assertion that mathematical judgments are *synthetic a priori*. Given a self-sufficient whole, judgments regarding its internal relations would depend for their validity only on the reflective development of this whole for naught. Hence if the universe were given to us as a whole we might be able, by analysis, to develop a complete system of absolutely valid metaphysical judgments. But I cannot now pursue this subject farther and it will be apparent from the conclusions of this article that I do not regard judgments of the immanent relations of real beings to be ever wholly validated without a synthesis which carries thought beyond a merely immanent experience. (I mean, of course, a human experience.)

their relation to the whole, whereas in the case of transeunt relations, the related things seem at first sight to exist apart from the relations. Now when the philosopher is driven beyond the latter conception by his inability satisfactorily to conceive how causal interaction can take place between things not already related in nature his next step is naturally to reduce all transient relations to immanent relations. And at this point the internal structure and movement of a conscious selfhood become the clearest and most obvious illustration of a consistent system of real dynamic and immanent relations. For, indeed, the self is the source of both types of relation. The self develops its internal nature by going beyond itself. In its development a living conscious self is constantly transforming external relations into immanent relations, constantly appropriating into its own being the effects of its apparently transient relations with the external world. The self, in the idealist's now familiar and well-worn words, offers a unity developing in and through variety, an identity persisting and growing in the midst of change. The self maintains the continuity of its life through a varied succession of events, etc. The self then affords not merely a static illustration of the immanent and organic unity of relations which must belong to the real world, if the latter be intelligible, but besides in its very conscious life and growth it affords us a beautiful illustration of how there can be development or growth in an actual unity. It is of course possible that the real world may be a mechanical system. But then evolution must be an illusion. The individual centers of the system can have no vital material influences, no actual relations. If the real world consists of actually related elements then evolution in it must be conceived in terms of conscious selfhood.

The idealist, then, who reduces all reality to the contents of a single all-embracing self or consciousness, seems only to be carrying out to their inevitable issue the implications of the simplest and most matter-of-fact relations. But has he not gone too far and moved too hastily? The outcome of his theory is that there is only one real being in the universe to whom all relations are internal or immanent. But can we conceive of such a being? Is not, after all, the entire meaning of our concrete experience 'absorbed,' 'transmuted,' abolished in this conception? What is the meaning of an all-absorbing unity which eats up all relations? After all, if relations be real, in any sense there must be real *beings*, not one lone being, to be related. Relations can not be simply internal to a self.

In truth the internal structure and movement of a single self do not furnish us with an adequate and ultimate conception of the metaphysical significance of relations. The individual self does

live by transforming external relations into internal relations. But it is equally true that the self's internal structure, the mutual positions and movements of the various aspects of its complex life, get defined, come to consciousness, are realized, only through transeunt relations.

It is preeminently in living intercourse or interaction with other selves that the individual's own internal nature is realized. The individual can gain no true inward life without the play upon himself of social influences. *The most comprehensive type of relation, then, is furnished by the individual life in society*, by the individual as a member of a spiritual and dynamic system of selves. For here no relation is purely transeunt or purely immanent. There are in a spiritual, social unity no merely external transactions that have naught to do with the lives of the transactors. There are no purely immanent relations between aspects of the individual life that have naught to do with other lives. Each separate self may have his own apparently unique and unsharable relation to the world. His action on other selves through the medium of the extra-mental world may seem wholly transeunt, but in the pursuit of common aims, in the possession of common ideals and principles of thought, the seemingly external and transeunt relations of selves become immanent in the individual. The unity of a society of selves then affords us a genuine example of relations that are at once transeunt and immanent. And so we may say that the fundamental type of relation of which we are in search is furnished by the reciprocity of influence exerted and felt by the living centers in a spiritual system or community of conscious beings.

I will now sum up the conclusions of this enquiry. If the judgments of reflective thinking are valid for reality, even to a very limited extent, thought-relations must hold of reality, *i. e.*, be themselves real. If relations be real there must be a multiplicity of real beings to be related. If relations be real they can not be external to the beings related, and the world must be one. If there be a universe of related elements the relation must be at once vital and internal to the elements related, and the latter, on the other hand, must be themselves individual and living centers or sources of relationship. It might be possible to conceive the relations of the parts in an entirely static universe without reference to the lives of conscious beings. Such relations would be mere threads of connection woven by our thinking between elements which in truth did nothing and in which nothing happened. But in a universe in which evolution or growth actually takes place the reality of movement implicates every element in some sort of relation to the dynamic process. The relationship of elements which develop or move from

within and receive influences from without can be best conceived after the analogy of the reciprocal social influences of conscious selves. If growth be internal to the real universe then the unity of the latter must be constituted by the mutual influences of elements which live at once in transient and immanent relations. The fundamental reality in the relations of things is the reciprocity of influence among living centers in a system. This system by the very living and conscious character of its elements and the mutuality and directness of their influences and development may properly be called *spiritual*.

To develop adequately this conception of the ultimate significance of relations would carry us far afield. We should have to pass the limits of a journal article and embark on the wide sea of metaphysical system. With this suggestion of where the theory of relations leads I must close this necessarily meager article.

J. A. LEIGHTON.

HOBART COLLEGE.

DISCUSSION

UNSCIENTIFIC METHODS IN MUSICAL ESTHETICS

THAT the terms used for a scientific theory must be defined, is self-evident. Scientific terms are words; they must be words, to be written and spoken, since the object of science is the communication of knowledge. Most of the modern sciences have been very fortunate in introducing a terminology made up of words which had practically no meaning whatever before the scientist gave them a meaning by referring to a *definite group of experiences*. Practically all the scientific controversies of earlier centuries concerning terms now well defined, for example in mechanics, arose from the fact that a term employed had a vague meaning before it was used as an arbitrary symbol for a definite group of experiences. Mach's 'Science of Mechanics' gives instances enough of this sort. Instances of a similar obstacle to progress in a distinctly modern science will be found farther below (observe the terms 'rhythm,' 'esthetic').

There is a science of very recent origin which is very unfortunate with respect to terminology—esthetics. We must not permit ourselves to be deceived by the fact that many of the terms used in esthetics are clearly of Greek or Latin derivation. However true this may be, they had long ago become associated with a large number of experiences other than those referred to when we first met them in the beginning of a book on esthetics.

Under these circumstances the esthetician ought to be most care-

ful in his terminology. If he is not careful, the result is metaphysics, *i. e.*, terms introduced as symbols for very definite groups of experiences are forgotten to have been introduced thus, and are used for the construction of premises under their old meaning, with all the wealth of their previous associations. Of what scientific value are the conclusions drawn from such premises?

Of course, every one is liable to frequent reversion to his old views. This is human nature. A distinguished author does not lose his distinction when indefiniteness of his terminology can be demonstrated. But if it can be demonstrated, it ought to be, for the benefit of those readers who otherwise might accept a terminology and a system based thereon without seeing the dangers resulting therefrom. These dangers are much greater in the German language than in the English. The indefiniteness of German psychological terminology (I speak of esthetics as a branch of psychology) is very conspicuous in comparison with the English terminology. This, at least, is the writer's impression. It is possible that he is here influenced by the fact that he was familiar with German long before he learned English, so that his German words possess more early acquired associations; however, this is probably more than an individual impression. How much the German language has been misused by speculative philosophy is well enough known.

My intention now is to criticize the terminology and the methods of procedure of a school of German psychologists who have paid special attention to the theory of melody, a problem in which the writer, too, takes a particular interest.

I have in mind Theodor Lipps and his pupils. Quite recently appeared a paper in the *Zeitschrift für Psychologie* which may be regarded as the most significant contribution of this school to musical theory, Weinmann's article 'Zur Struktur der Melodie.' That its views are distinctly Lippsian, is clear from the fact that Lipps is quoted several times on nearly every page, while only a few scattered and rather unimportant references to Meumann, Wundt, Stumpf and Helmholtz appear. Writers other than German are regarded as non-existent. Weinmann's intention is entirely confined to an application of Lippsian views to some musical facts—I should better say: apparent musical facts—to which these views had not been applied before. Within its scope the article is very valuable indeed. Its chief value consists in describing in *Lippsian terminology* the simplest and most common tone phrases which one can find embodied in practically any familiar tune.

Now let me raise the question: what are the fundamental differences between the scientific methods employed by the Lippsian school and the methods employed by the present writer in the same field of investigation?

In founding a science we must try to establish a set of fundamental laws formulated with absolute definiteness and clearness, and then show by a never-ending experimental application to the facts of experience that these laws are correct. By definiteness and clearness I mean that our terms, the symbols we use, must refer to relatively simple and easily observable facts. Whenever such an application necessitates a correction of a law, or the formulation of an additional law, we must act accordingly. What now are these laws in music?

The Lippsian school proceed thus: They select for investigation, by a very arbitrary method, what seem to them the most common, the simplest musical phrases in their own national music only; and in order to find the elements of melody, they divide these musical phrases into as many musical elements as they happen to find, making, thus, the fundamental laws of this science dependent on the chance ability of the observers to analyze completely experiences of extreme complexity into elements, despising a more perfect method because they hate the laboratory. They formulate the psychological laws of the esthetic effect of these elements as they happen to strike them when heard within larger phrases, despising any and every attempt to separate experimentally the esthetic elements for this purpose, save such superficial experiments as can be made on any piano. They formulate the laws in terms which are derived from the Lippsian system of psychology rather than in terms which are defined to mean the fundamental musical experiences themselves. They explain the esthetic effects of particular musical phrases by formulating the effect of particular combinations of elements in laws which they subject to the test of agreeing with the Lippsian system rather than to the test of experiment. They thus construct a theory which is very satisfactory to every one who confines himself within the scope of music treated by the Lippsian school and within the scope of the Lippsian psychological system, but which must appear rather barren to him who rejects such limits, and who believes in higher ideals of scientific research than medieval dialectics.

I shall illustrate these charges against the scientific methods of the Lippsian school by a critical discussion of the most striking instances in Weinmann's paper. But, first, I ask the reader's permission to characterize briefly my own work along similar lines. Compared with the apparent results of the Lippsian school, my own results look very meager. But this meagerness has its advantages.

I did not start from any circumscribed class of music. I spent—the Lippsian school would probably say 'wasted'—much time in trying to find out *all* those combinations of two tones each, repre-

sented by any possible ratios, which strike us as possessing melodic relationship. After having reached a subjective certainty of the correctness of my observations sufficient for a preliminary formulation of a psychological law, I formulated the result in a fundamental law of melodic relationships. This agrees largely with Lipps's law, but differs in certain very important parts. It differs because it is the expression of my observations, whereas the Lippsian law is the result of a speculative derivation from a pseudo-experience of 'micro-rhythm.' I then constructed an absolutely comprehensive table, showing *all* the possible relationships which can be found in *any music* made up of *any number* of related tones, in order to have a definite basis for experimental research. And then, it is true, I did not develop a system of esthetic effects of a limited number of the most common and practically most important melodic phrases, described in terms of a particular system of psychology, but found myself overwhelmed by innumerable questions of fundamental importance which can only be solved experimentally, and which, without an experimental solution, will never be a scientific theory of music. Only a few, very few, of these questions I have been able, as yet, to investigate experimentally far enough to publish the results. The reader may find them in the *American Journal of Psychology*, Commemorative Number, Vol. XIV., No. 3-4, July-October, 1903. How one can dream of solving all these problems, instead of subjecting them to a rigid experiment, by applying to them flowery, esthetically sounding names of distinctly Lippsian color, is hardly comprehensible to an experimental psychologist.

What I regard as the chief result of my own labors in this field is to have made it easier, in some cases I may say even *possible*, to formulate questions with such an accuracy that their experimental solution can be attempted. If any one can find any stimulation towards an experimental investigation in Weinmann's paper (I take this as a representative of Lippsian type) I wish he would tell me in what line on what page. I have found there only a constant encouragement of dogmatism. What I claim for my work is that it helps to raise questions simple enough for experimental investigation. What I find in the work of the Lippsian school is that it tries to satisfy those who are looking for a finished system, despising any experiment except perhaps what can be performed in an arm chair before the writing desk.

I shall now give illustrations.

Very characteristic is the beginning of Weinmann's paper: 'A melody is a unity, a whole, not a mere succession of tones.' This can not mean anything but the fact that only those successions of tones in which we experience relationships between the tones are

called melodies. By 'unity,' then, must be meant the existence of such relationships. Nothing beyond this can be meant, if we remain within the field of science. Weinmann now adds to this definition of the term unity, although this means obviously *esthetic unity*, the term 'esthetic,' without giving a sufficient reason why the word unity alone should be insufficient as a linguistic symbol for the experience of relationships; with the secret purpose, on the contrary, of enabling himself to deduct dialectically from these two words a speculative system.

"And it is an *esthetic* unity of elements which are comprehended in one element to which the other elements are as subjects to a monarch."

Two points of criticism must be brought out:

1. Is the term 'esthetic unity' generally accepted as meaning *subordination* of all the elements of an artistic structure to *one* of its elements? If this were a definition which had been proved to be of scientific usefulness in *all* the other divisions of esthetics, then it would be justifiable to try it, at least as a preliminary definition of *esthetic unity in music*. I am not aware of sufficient reasons to adopt it in other fields of esthetics. The only justification, then, for its acceptance here would be the actual proof that *in tone combinations* esthetic effects are found exclusively when there is such a subordination to a monarchic element. Weinmann obviously takes either this or the universal acceptance of his definition of the term esthetic for granted, without even saying which. Is this a scientific method?

2. I have always protested against the Lippsian definition of melody by means of 'subordination of all the elements to one.' This definition is absolutely in contradiction to my own introspection. All I observe as necessary to speak of an esthetic effect, of melodiousness, is the existence of relationship, not of subordination. It is obvious that this difference of opinion is of fundamental importance. How can a theory of melody be regarded as of any considerable value before such a discrepancy of opinion is settled by experimental methods of investigation? Weinmann starts from his *narrower* definition of melody as from a dogma, as if this were not a matter of observation at all, without hinting by a single word at the possibility and actual existence of a wider definition. Is this a scientific method? Is it useful?

If we accept the Lippsian definition of esthetic unity in tones, we limit the extension of musical science to the music to which Weinmann's discussion limits it. In the music which we have as the result of historical and sociological factors among the European peoples there may be an infinitely small percentage of actually used music which does not possess such 'subordination.' But how about

other music, *e. g.*, Japanese music, to which the writer has paid some attention? It is justifiable to exclude such music from investigation by the very definition of 'esthetic unity'? To me and to others who have heard them, some such melodies possess 'esthetic unity' without showing the subordination of the tones to a monarch tone. Are such observations of less scientific importance than the demands of a speculative system for completeness, for being able to pretend to be a final truth? Can such an arbitrary limitation of the field of scientific investigation in esthetics be called a scientific method?

I said above that the Lippsian school starts, not from an experimental investigation of the elementary facts, but from complicated musical phrases, relying entirely on the ability of its members to analyse them. It is not wonderful, then, that their laws are always narrower than mine. One of these musical phrases is the diatonic scale, which is introduced by Weinmann on page 345 as if it were a divine revelation. No attention whatever is paid to my endeavor to show why the diatonic scale is of so much practical importance for music without being itself a fundamental fact of esthetic natural law. No attention is paid to my endeavor to show that the diatonic scale of musical practice is an extremely many-sided structure, that it is absurd to speak of *one* diatonic scale in just intonation. What I reject is made the corner stone in the Lippsian system; and this not on the basis of any sound reasons given, but entirely dogmatically. Is this a scientific method?

The result of starting from this dogmatic basis is, for instance (p. 349), that both the relationships 2-9 and 3-5 are treated as unmelodious, called 'dissonances,' and are placed into the same class with 2-45 and 5-27 (no relationships at all!); and that a general psychological law of 'resolution' of dissonances is formulated (p. 350) thus: if two unrelated tones appear, they demand the passing of the melody to a tone closely related to both. I venture to say that there is no such law of resolution as this. The few examples given by Weinmann can be theoretically understood without his law. And what is commonly called 'resolution of dissonances' represents too complicated a problem to be solved by the statement of the above 'law.' With respect to Weinmann's classifying the ratios 2-9 and 3-5 with 2-45 and 5-27, I request him to tell who revealed this to him. It can not possibly be the result of an observation of such tone combinations in isolation. It seems to me that it is merely Lippsian doctrine, derived speculatively from his 'diatonic scale.'

Let us turn to another point. The question at issue is this. If one group of facts of experience, *A*, is well enough known, so that

we can formulate some of its natural laws, are we permitted to *derive* the natural laws of another, different group, *B*, by mere linguistic operations from the laws of *A*? I deny this. The laws of *B*, which is admitted to consist of experiences different from the experience of *A*, can only be found by experimentally studying *B*. The reader will probably ask, what indeed could induce a sane person to derive the laws of *B* from *A*? What can induce some to do this is the hypnotizing power of a *name*, the same name given to both, to *A* as well as to *B*.

It would be scientifically correct to give the same name to *A* as well as *B*, if, and in so far only as, the most fundamental laws of both groups had been found experimentally to be identical. So, *e. g.*, may certain most fundamental facts of heat and light be referred to as 'ether vibrations,' this being used as their common name.

Suppose, now, the laws of light were known in detail, those of heat unknown except that heat were known to resemble in a superficial way the experiences of light. Suppose further, that some one had happened to refer to this resemblance by means of using the same name, ether vibrations, for both. Would, under such circumstances, any physicist have thought for a moment of deriving the unknown laws of heat from the known laws of light? Little knowledge of physics is necessary to know that the laws of heat, as we have them now, could never have been deductively derived from the laws of light, that on the contrary they were actually found by experimental studies of heat.

The Lippsian school are blind to such obvious facts of scientific methodology. How do they proceed? There is a group of *physical* experiences, *B*, to which the physicist refers by speaking of frequency of vibration rates. There is another group of *psychological* experiences, *A*, generally called rhythm. If any one thinks that *rhythm A* and the *esthetic* effects of the physical group *B* obey identical laws, *he has to prove it* by studying *experimentally A* as well as the esthetic effects of *B*. If he can prove thus, that not a few minor details, of course, but the most general laws in both cases are identical, he then has the right to refer to this (limited) identity by using a common name.

I now request every psychologist who is interested in the advancement of his science to address to the Lippsian school this question: You have called the esthetic effects of group *B* by the name of 'rhythm,' 'microrhythm.' Did you study group *A* (rhythm) as well as the esthetic effects of *B* experimentally with a result which justifies what you did?

Did they study experimentally group *A*, the psychological experience of rhythm? One is astonished to find that the latest mono-

graph on rhythm mentioned by Weinmann is Meumann's article published in 1894. Of the extensive literature on the subject issued during the last ten years and published chiefly in American periodicals he is absolutely ignorant.

Did they study experimentally the esthetic effects of group *B*? There is not the slightest reference in Weinmann's paper to what might be called a scientific experiment. On the other hand, my own experimental results are constantly contradicted by Weinmann's linguistic deductions with a naïveté, which would be impossible if he had ever read one of my papers. He is far above such earthly ways of scientific inquiry. And this wonderful empirical basis of knowledge gave them the right to refer to both groups of experiences by the term 'rhythm,' 'microrhythm'!

However, if they would stop here, little harm would be done beyond confusing careless readers. But they do not stop here. Having arbitrarily called group *A* and the esthetic effects of group *B* by the same name 'rhythm,' 'microrhythm,' they proceed to derive—listen and wonder—by purely linguistic operations (I call attention to the frequency of 'demnach' in Weinmann's paper) *the laws of tone relationship from the laws of rhythm*. Whom does it astonish, then, that their results differ from those of my experiments? Does their linguistic skill invalidate my experiments, or do my experiments invalidate their linguistic results?

Here a few instances. I have experimentally shown, so far as a careful interpretation of experiments can show anything, that the deductive theory of Lipps concerning the esthetic effects of a movement from the lower to the higher octave, or the reverse, is experimentally unfounded, an unnecessary complication of the scientific theory. Weinmann repeats the deduction of his master. No hint at an experiment of mine. No hint, of course, at an experiment of his own. The idea seems to be: only reiterate your statements as frequently as possible; the scientific public will then gradually get accustomed to them and overlook their speculative origin.

Another instance: I have shown, I think conclusively, by experiment, that between our satisfaction with tempered intonation and the tendency towards a characteristic intonation of the different intervals there exists no causal connection. Weinmann repeats the opposite opinion on the mere authority of Lipps. No hint at an experiment of mine or at one of himself.

The authority of the master makes itself noticeable also in Weinmann's theory of the difference between minor and major music, 'Moll' and 'Dur,' as the German terms are. The doctrine of the Lippsian school is that, each having of course only one key note, *i. e.*, chief note, 'Moll' has 'four despotic notes' in addition, 'Dur'

only 'two despotic notes.' No attempt is made to derive this theory of 'Moll und Dur' in a mathematically correct manner from the fundamental laws of tone relationships as found combined in what we call minor music. It is derived by linguistic skill from a minor scale, the intervals of which (in ratios) must have been revealed to the master and given by him to the school as a dogma. So I suppose, since nothing is said about the theoretical origin of this scale of intervals save the statement that this scale 'als die eigentlich massgebende Form für die Verhältnisse in Moll gilt' (gilt = is accepted!).

Strange to say, Weinmann adds here the statement that the esthetic character of minor music has given to it the name of 'Moll' as opposed to 'Dur.' The present writer did not expect to find this in a serious article. It is well known that the names 'Dur' and 'Moll' do not refer at all to the esthetic character of any music, but to the manner in which medieval musicians used to write a symbol of musical notation, square or round.

It seems to me that, before one attempts to enter as deep into the details of melodic construction as Weinmann tries to, the foundations of the science ought to be placed on a secure ground by experimental investigation. Otherwise, one's theoretical interpretations of a melody may be as beautifully sounding as this of Weinmann's (p. 374): 'Demnach macht eine in den Tönen des übermässigen Dreiklangs sich bewegende Melodie den Eindruck des Unbegrenzten, Offenen, des sich Ausweitenden und Verlierenden, der starrenden, öden Leere, wie des plötzlich Entfesselten, des schrankenlosen Ausbruches, sei es der Freude, der Lustigkeit oder des Zorns, des Entsetzens.' But such interpretations are not scientific. They do not convey any definite knowledge. They appeal to our familiarity with unanalyzed emotional complexes in order to hide the vagueness of the terms of which they are made up.

My criticism may be superfluous. May be the Lippsian school does not intend to further science. Weinmann says himself what his intention was: not to contribute to a theory of music based on experimental investigation. No such expression as this is to be found in his paper. His intention was: 'die Weiterführung der Ansichten von Lipps,' *deduction from the opinions of Lipps*.

I should regret if my criticism should seem to be personal. There is hardly a psychologist from whose publications in general I have learned more than from those of Lipps. And I have learned this and that from Weinmann's article too. I wish to criticize the methods of a school, not the personality of its members. I wish to protest against their despal of the experiment, against their unscientific methods, for Science's sake.

MAX MEYER.

REVIEWS AND ABSTRACTS OF LITERATURE

L'irrazionale nella Letteratura. G. FRACCAROLI. Turin, Fratelli Bocca, 1903. Pp. xii + 542.

This book of the learned translator of the odes of Pindar might also have the title 'Irrationality in Art,' since the author considers his observations to be valuable not only for literature but also for plastic art. The greatest part of the examples referred to is taken from the author's own provinces, philology and literature.

The critical and rational method applied to art in the beginning had much success, for it gave a more thorough understanding of the past and a more just appreciation of its work. But it seems that there is some danger imminent from the excessive use of this method. Science describes in rational terms what admits of such a description, and theoretically this attitude is possible towards everything. Philological critique, for instance, is certainly justified, in its application, but it is not the only way of looking at things, and it entirely neglects the fact that art and especially originality in producing contain illogical elements which are not accessible to a merely logical treatment.

Time and space in works of art have not the same measurement as in nature, and, moreover, their measurement changes, for instead of being the rule for their content they are adapted to the exigencies of each particular case. Different examples from Dante, Virgil and Homer show how time and space dimensions are altered, but although some of these changes may be noticed also by the reader whose interest is not critical, his esthetic pleasure is little affected by them. The poet represents the present, and it is not necessary for esthetic appreciation that he considers the present moment in its logical relations. Even the suppositions of rational character to which we are accustomed by daily life are easily forgotten, if the occasion does not necessitate their application. The normal state returns when the poetical illusion disappears.

The same shifting may be observed in the moral concepts. Although they have undergone an historic evolution they are not always introduced in the form they have reached in the consciousness of the poet and his contemporaries. Instead, we often observe a return to the more primitive notions of the past. Fraccaroli's chief interest is concentrated in the notions of God and in the mythology of Dante and Homer. The same considerations can be applied to other problems, where a striking shifting of the valuation of an object is observed, as for instance in the case of the two diametrically opposite statements of Sophocles about the value of knowledge in *Antigone*, 1348, and *Ajax*, 554. It follows that only by a careful investigation may we decide which judgment of value in a poem may be considered to be characteristic for the standard of morals of the poet and his time.

The author tries to resolve the very complicated psychological problem which the artistic production offers in this way. He assumes that legends are formed by the poetical production of the people. These legends are the matter which is brought into shape by the poet. A legend

in some respects gives a more nearly correct idea of the real facts than history because it retains what was important and characteristic for the people at a certain time. To put into discussion the deed of Harmodios and Aristogiton might improve our knowledge of the historical facts, but this lack of accuracy for centuries fulfilled its purpose by keeping vivid among the Athenians the enthusiasm for freedom. In fact sometimes the poetical representation is a compromise between different groups of ideas. The poet takes the view of the reader, and it is not of importance if the means by which he attains conviction do not fulfill all logical requirements. We therefore come to the conclusion that artistical and historical truth may differ.

A short passage (pp. 408-412) treats the relation of logic and passion. The author's opinion is illustrated by the scene from Aeschylus where Elektra concludes that her brother has returned, because she finds a tuft of hair on the tomb of her father. It has been pointed out very often that this scene and the following, where Elektra recognizes her brother, are not satisfactory, because the proofs of Orestes's recognition are not sufficient. Already Wilamowitz has shown how these difficulties are to be explained, and has pointed out that logic of love is other than that which is taught by Aristotle. Elektra, the affectionate wife, sees the truth by intuition; she knows, because a most simple reflection has revealed all to her, but when she tries to give the reasons for her belief she can not. We have in this a case of affective reasoning, which if represented on the stage always makes an unjust impression, because only the case when it is valid is shown and none of the preceding cases when it was erroneous.

It is not possible to go into the philological details of Fraccaroli's arguments which are mostly taken from the ancient and medieval literature. We may note only the striking juxtaposition of the increase of religious scepticism and the doubt of the existence of Homer (p. 53), and the remarks about the doubtful value of statistics of words for a philological critique. The author restricts his statements to the Homer problem, but it is easy to see that his arguments may be applied to those speculations about the time of the composition of Plato's dialogues which have been tried by Dittenberger, Schanz and C. Ritter, who attempted a statistical study of certain words. Fraccaroli's view certainly will be favored by those who agree with Zeller that only a thorough understanding of the writer's phraseology could be valuable for the decision of these questions.

Many of the author's points already have been suggested in the 'Prolegomeni' to his translation of Pindar's odes, and it is interesting to compare the present book with the third chapter of the 'Prolegomeni.' Sentences like the following: "It is theoretically possible that reasoning may be applied everywhere, but logical considerations have not always been of influence in the beginning"; or, "Lyric has its own logic which differs from the usual logic, and it has connections which are unknown to reason"—could be found equally well in the present book. Andersen's fable of the royal garment which can be seen only by those who are

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worthy of their position concludes the book. It would seem that the author alludes to certain philological niceties which exist only in the imagination of a few, who force them upon the credulous.

F. M. URBAN.

HARVARD UNIVERSITY.

Mind and Body in Recent Psychology. A. E. TAYLOR. *Mind*, October, 1904, pp. 476-508.

"The aim of this paper may be stated in a sentence: it is a defence and a modified restatement of the old doctrine of interaction as, at present, the most satisfactory theory of the connection between body and mind." The specific ends toward which argument is directed are: (a) to harmonize the interaction view with the epistemological arguments for regarding body and mind as two aspects of a single reality; (b) to justify interaction as a working hypothesis; (c) to prove that parallelism is an *ignoratio elenchi* in idealistic metaphysics. In an exhaustive treatment, Professor Taylor devotes the negative side of his argument to a logical analysis and criticism of the positions of Stout, Ebbinghaus and Münsterberg, all supporters of some form of the parallelistic hypothesis.

The essential positive points in favor of interaction are as follows:

1. Out of the need for cooperation arises the necessity of exposing the 'self' in a complex of presentations which have their equivalent in the experience of other 'selves' of the same structure. Thus all inter-communication and description presupposes the artificial abstraction and separation of one aspect of experience, the mechanical, from another, the teleological, with which, in fact, it stands in indissoluble unity. As a matter of scientific description there is also the need to exclude certain aspects of real life from our conception of the physical and to relegate them to a psychical realm. Hence, the problem is not to find *the* connection but to invent *a* connection which will give harmony to these descriptions.

2. We have no experience of sequence of the barely psychical on the barely psychical, or the barely physical on the barely physical. When dealing with the facts of experience we have always a complex. Hence the only inference warranted by logic is the dependence of complex state on complex state, which appears to tell against an independent parallelism. Between the elements of these complex states as severed for description, one-to-one correspondence can not be established, if for no other reason than that the psychical has a 'meaning' which the physical lacks, and this appears to tell against the 'two aspects of a single reality' theory.

3. We can not accept the complete mechanism of Spinoza or the complete teleology of Münsterberg. "For the very fact that the one series can be more or less satisfactorily constructed in terms of a refined and complicated mechanism while the other can not, but needs for its interpretation the recognition of an explicit purposive and selective unity, shows that as teleological systems they can not stand on the same

level of organization; one or the other must represent a higher level of purposiveness, and as manifestations of the same type of structure, but at different levels, the two series can not have a genuine point-to-point correspondence." A complete teleology, further, must read the teleological element into every physical process, while a complete mechanism must analyze the teleological processes into terms of physical science. These deadlocked theories must each refute a great mass of direct experience.

4. Now, if we could come, logically, to regard mechanism as only low-grade teleology, "it is certain that in the universe of describable processes, we shall reach a point where mechanism will no longer serve as a principle for the formulation of facts but must give way to explicit teleology. And if this point should fall somewhere within the realm of the psychical, of course a complete psychology will have to use both mechanical and teleological categories, the former for routine and habitual, the latter for purposive, novel action. Whether this transition in method be effected depends on whether good or ill success attends the working out of the mechanical theory."

The essential negative points made are as follows:

1. Against Stout's contention that interaction involves a conception of causality which we can not frame, Professor Taylor submits that all causation depends upon the very solution of continuity effected by the emergence of new qualities. "In merely quantitative change considered as such there is nothing which enables you to distinguish between cause and effect; you have temporal continuity, and you have your equations and that is all. It is only the further fact that new qualities appear at certain stages which makes it proper to speak of the process as a causal one at all. The whole paradox of causality lies in the fact that it involves a synthesis of the quantitatively or numerically continuous with the qualitatively discrete." Interaction would take account of this complexity of the concept of causation while for parallelism the inexplicability of transeunt action breaks out within the psychical series itself in an eternal qualitative difference between effects and causes. So that the solution of continuity which is declared fatal to interaction is certainly no less fatal to psychical connection. The whole argument against recognizing a 'factor which does not belong to the material world' is a *petitio principii*. The real question by strict logic is, do we have a right to talk of the 'material world' at all? So long as we do talk about it, we have it in interrelation with the immaterial series. And when the two are severed, we find that the material element, considered alone, exhibits many marks of incompleteness. It is something which requires for its comprehension the recognition of its thoroughgoing dependence on something else.

2. Against Ebbinghaus's forcible contention that the theory of interaction would deny that a change of direction in the physical series would involve a change in the existing quantum of energy, Professor Taylor advances the surmise that the psychic influence might be like Maxwell's demon, able to change direction without doing work, or like a force acting at right angles to the direction of motion.

3. Against Münsterberg's contention that while reality is through and through teleological, description and scientific explanation can be made only by entire abstraction of the objects of knowledge from their teleological relationships, hence appearing as connected by mechanical laws, Professor Taylor asserts that this view presupposes that the only possible analysis of experience must be into atomic elements. If we carry our scientific descriptions all the way in this fashion, we get to the point where mechanism is confused with teleology 'and this is intolerable.' Besides, the mechanical psychology which arises out of Münsterberg's parallelism, can be got to work only by an indirect reintroduction of the teleology which he bans. For at the root of description lies the purpose for which it was made,—a fundamental paradox.

While affirming the force and cogency of Professor Taylor's criticisms of parallelism, we should not regard his endorsement of interaction as possessing logical ground. That endorsement seems to follow upon an acceptance of a general experience of the unitary nature of the physical and psychical series in toto. As a purely naïve experience not many will deny this. Yet it is the apparent contradiction between this intuitional datum and the logic of discursive thought which gives rise to the whole problem of psychophysical connection. By defining psychophysics as 'a purely empirical science' the metaphysical problem is openly waived. This, it is true, leaves a certain positive justification for interaction as a working hypothesis, but it in no wise 'harmonizes it with the epistemological arguments for regarding body and mind as two aspects of a single reality.'

The citation of Maxwell's demon as a possible analogue of psychophysical causation is a further illustration of insufficient logical ground for interaction. No reality can be assigned to such a conception, which in the theory of heat is a purely hypothetical and ideal construction. However, we conceive that great importance must attach to Professor Taylor's criticism of causation and his exposition of its conceptual complexity. For it seems clearly to indicate that our very inability to put the vivid experience of interaction on a logical footing points toward some grave error in the science of logic itself. Of course Zeno's paradoxes stand as the historical prototypes of problems stated in such a way that orthodox reason can not touch them, and the problem of mind and body has hitherto been worthy of its forebears.

If causation, asserted as a 'demand' of consciousness, is thus analyzable into a complex, the question readily arises, what may not happen when other logical concepts are subjected to the same kind of criticism?

PHILIP HYATT TARR.

COLUMBIA UNIVERSITY.

NOTES AND NEWS

THE Third International Congress of Philosophy will be held at Heidelberg in 1908, under the presidency of Professor Windelband. Professor C. A. Strong, of Columbia University, has been added to the English speaking members of the International Commission of the Congress.

THE Fifth International Congress of Psychology will be held at Rome, under the presidency of Professor Luchieni. Its date has been definitely fixed for April 1905. There will be four sections as follows: (1) Psychology in its Relation to Anatomy and Philosophy. (2) Introspective Psychology. (3) Pathological Psychology. (4) Criminal and Social Psychology.

DR. PLOETZ, of Berlin, in collaboration with Professors Nordenholtz and L. Plate, has recently founded an *Archiv für Rassen- und Gesellschafts-Biologie* devoted to the problems of evolution.

PROFESSOR SCHUMANN, of Berlin, is expected to issue shortly the first number of a new periodical, *Psychologische Studien*, devoted to the publication of the results of the work in his laboratory.

OXFORD UNIVERSITY will confer the degree of D.Sc. on Dr. Harald Höffding of the University of Copenhagen.

DR. MAX WENTSCHER, formerly privatdozent in the University of Bonn, has been appointed on the philosophical faculty of the University of Königsberg.

DR. R. S. WOODWARD, professor of mechanics and mathematical physics and dean of the faculty of pure science, Columbia University, was elected president of the Carnegie Institution at the meeting of the trustees held at Washington, on December 13.

THE seventieth birthday of Dr. George H. Howison, Mills Professor of Philosophy in the University of California, was celebrated on November 29. A *Festschrift* has been issued by the university press containing contributions by his former pupils.

THE American Philosophical Association and the American Psychological Association will meet in Philadelphia, December 28-30, in affiliation with the American Society of Naturalists and other societies convening with the American Association for the Advancement of Science. A joint session of the two associations will be held. The philosophical Association, in accordance with a vote at its last meeting, will devote one session to a series of papers on 'Kant's present significance.' There will also be a paper in recognition of the bicentenary of the death of Locke.

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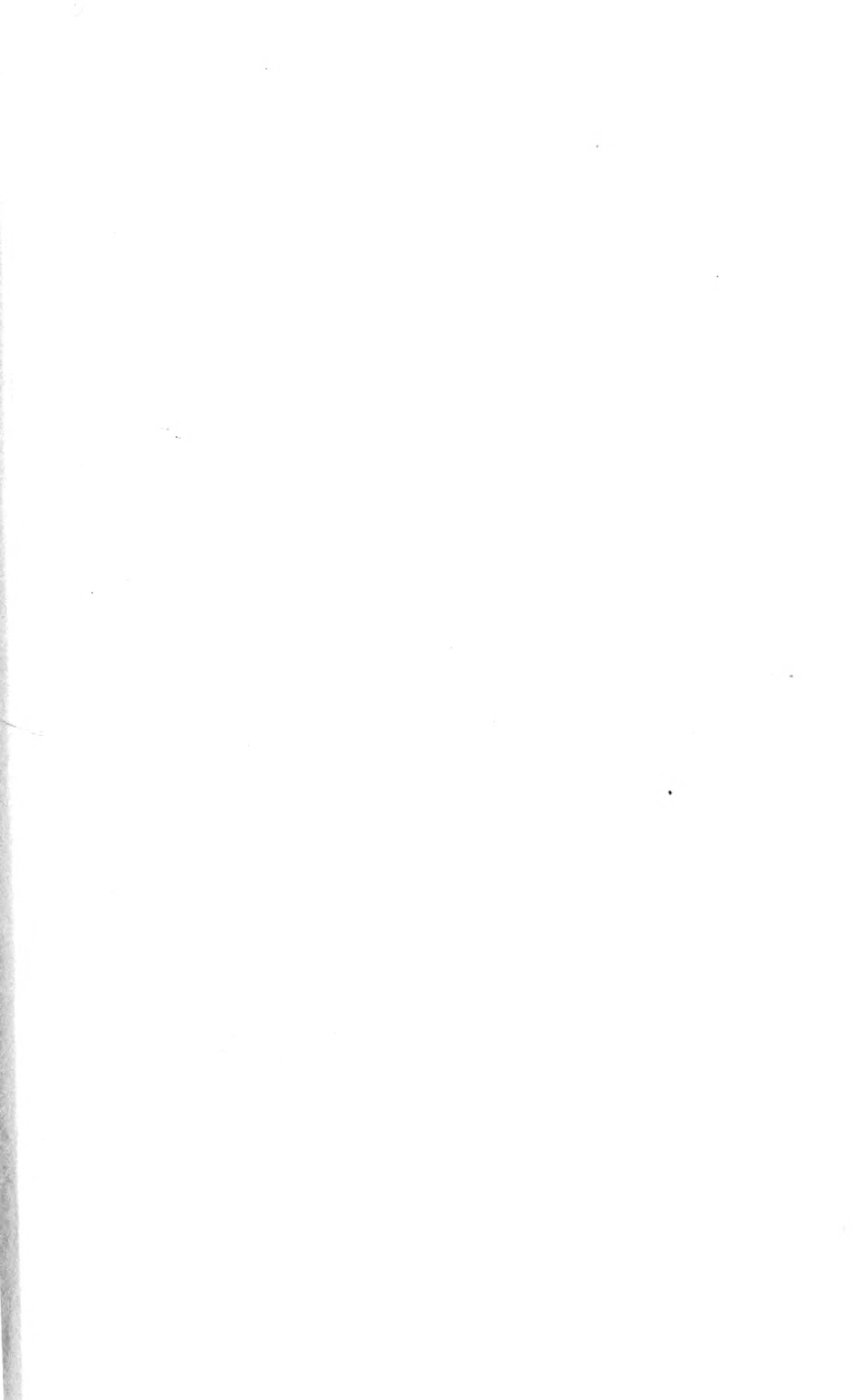
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ERRATUM

Page 684, line 9 from bottom, beginning with 'It is plain,' read: It is plain, however, that such abstract noetic unity, as we may call it, is a very insignificant thing. Chaos, once named, has a noetic unity which seems to carry with it no further consequences at all.



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